Self-Assessments

on Concept (3.1)

Self-Assessment 1 on Lesson 1

(A) Put (V) or (X	1 .	Market Market			
		erts sound energy into			
2. Mars rover Cu	riosity can be on	erated from a distant	o kinetic energy.	(
3. The stored en	eray in batteries i	s the light energy.	ce.	(
				(,
	n for the followin				
ouriosity robot u	ses the sunlight a	and batteries for its o	peration.		
(A) 18/rito the			***************************************	essentianet()	
		ach of the following	:		
	rce of energy on			(
		ed in the battery of a	remote	,	
controlling toy				(
planet Mars.	ontrolled venicle (used to explore the s	ипасе от	(
control.					****
Look at the opp	osite figure, ther	n choose the correct	answer:		
1. This car need	ls to m	ove.	A CONTRACTOR A	100	•
a. water	b. wood	43		Sal	
c. fuel	d. energy	(4.00)	1003	*	
	ng with the toy ca ns out, we have t he battery.	THE PERSON NAMED IN			
a. heat	b. cool		TOTAL .		
c. replace	d. freeze				
3. The form of e	energy that is use	d in operating this ca	ır is en	ergy.	
	b light		d. electrical		

c. thermal

b. light

a. sound

Self-Assessment 2 till Lesson 2

1	(A) Complete the following sentences. 1. When you rub your hands together, the consumed energy is energy. while the produced energy is energy. 2. The produced energy in a toy car is energy and sound energy. energies in a hair dryer are energy and sound energy. 3. The produced energy from coal when burned is energy, that is converted into energy used to operate the machines of electric power stations. (B) Give a reason for the following: The thermal energy produced from burning coal is used in some electric postations.	s	у.
2	(A) Put (V) or (X): 1. Curiosity robot needs sound energy to be operated.	()
	2. The electric lamp is the primary source of most energies on the Earth.	()
	3. The electric iron converts electrical energy into thermal energy.	()
	(B) What happens to? The change of energy when you press on the spring of the soap dispenser.	***********	****
3	Look at the opposite figure, then complete the following sentences :		
	This living organism can convert energy of the Sun into energy stored inside it.		
	2. If the wood of this organism is burned, energy is produced.		
	After death and burying of this organism over millions of years, it becomes coal that stores		

4. The formed coal can be used in electric power stations to generate

energy.

Self-Assessment 3 till Lesson 3

A) Choose the correct an	wer:	
	es to be operated.	
a. solar energy and elec		
b. solar energy and there		
c. electrical energy and	thermal energy	
d. electrical energy and	sound energy	
2. While playing a drum,	energy is converted into en	ergy.
a. sound - kinetic		
b. sound - light		
c. kinetic - sound		
d. kinetic – light		
In a bicycle, a part of k the friction of its tires w	netic energy is converted intoenergy ith the road.	due to
a. sound	b. thermal	
c. light	d. chemical	
(B) What happens to?		
	nen you rub your hands together.	

(A) Correct the underlin	ed words :	
1. Energy can neither be	created nor destroyed, but only converted from	one form
to another, this is the	aw of consuming of energy.	(
2. The consumed energ	while burning some pieces of wood is the therm	
energy.		(
3. The lighted lamp prod	uces chemical energy that makes you feel warm	th when
you put your hands n	out it.	

El Look at the following figures, then complete the following sentences:









Device (1)

Device (2)

Device (3)

Device (4)

1.	The	electrical energy	used to operate	devices	number .	
	and					

2. Kinetic energy is produced in devices and

Self-Assessment 4 till Lesson 4

1 (A) Comp	lete	the	following	sentences	* *
------	--------	------	-----	-----------	-----------	-----

- The output energy of burning coal is energy, which is used to produce energy in electric power stations in order to generate electrical energy.
- 2. The output energy that helps the washing machine to do its main function is energy, and this energy is considered the energy of the hand bell.
- 3. The input energy of the toy car is energy that is stored in its battery and then converted into energy in its wires to operate its motor.

(B) Give a reason for the following:

Sound energy and thermal energy are considered as wasted energy in the vacuum cleaner.

(A) Write the scientific term of each of the following:

- 1. The input energy of a television.
- 2. The wasted energy in a computer.
- 3. The output energy of the washing machine which helps it do its main function.

(B)	Mention	the	input	and	output	energies	of	the	opposite	device:
-----	---------	-----	-------	-----	--------	----------	----	-----	----------	---------

1. Input energy :





Electric iron

B Look at these electric devices, then complete the following sentences:







Device (2)



Device (3)

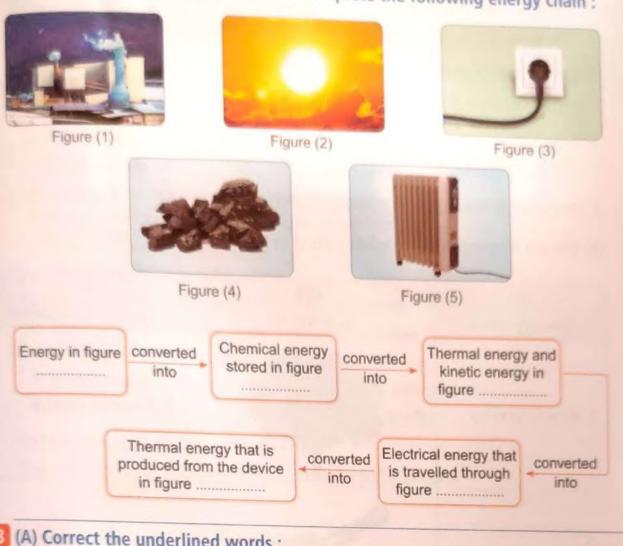
- 3. Noise from devices number and is wasted energy, because sound doesn't help the devices do their functions.
- 4. All of these devices are operated by energy that is transmitted from stations through wires.

Model Exam

on Concept (3.1)

1	(A) Choose the correct answer:		9	<0
_	1. Mars rover Curiosity is designed	to explore the	fs	mark
	a. planet Earth.	b. planet Mars.		
	c Sun.	d. moon.		
	2. Plants can convert the light energing is stored inside the plant in the for	y from the Sun into energen of sugar.	gy which	
	a. sound	b. electrical		
	c. chemical	d. kinetic		
	3. When a piece of coal is burned,	energy is produced.		
	a. thermal	b. kinetic		
	c. sound	d. potential		
(4. Inside a light bulb, electrical energy energies. a. sound – light b. sound – thermal c. kinetic – light d. light – thermal (B) What happens if?		***************************************	******
1	A) Put (V) or (X):		(5 mai	rks)
1	. There is stored chemical energy insi	de the food we eat.	()
2	. The input energy in a hair dryer is th	e chemical energy.	()
3.	As a result of friction between bike's changes into chemical energy.	tire and the road, kinetic energy	()
4.	We can convert the solar energy into	different forms of energy.	()

(B) Look at the following figures, then complete the following energy chain:



(A) Correct the underlined words:

(5 marks)

- 1. Light energy is stored inside the battery of a mobile phone.
- 2. Toy cars depend on fuel as a source of electrical energy.
- 3. Light energy, thermal energy and chemical energy are produced when a mobile phone is used.
- 4. The solar energy produced from the moon can be converted into different forms of energy.

(B) Give a reason for the following:

When you press on the spring of soap dispenser, the soap moves upward.

(accordin	ng to th	e chang	e of ene	ergy).
-----------	----------	---------	----------	--------

(A) Write the scientific term of each of the following:

- 1. The energy that is used to operate a television.
- Energy can neither be created nor destroyed, but only converted from one form to another.
- A kind of energy that is produced from the electric heater and burning coal.
- 4. The energy produced from playing guitar.

(B) Choose from column (A) what suits it in both columns (B) and (C):

(A) Energy used	(B) The device	(C) Energy Produced
1. Kinetic energy	a.	A. Thermal energy.
2. Electrical energy	b.	B. Chemical energy.
3. Solar energy	c.	C. Sound energy.

1.

2.

3.

Self-Assessments

on Concept (3.2)

Self-Assessment 5 on Lesson 1

(A) Choose the correct answ	ver:		
1. To move a car, the fuel mi	ust be the car engine at first.		
a. freezed inside	b. cooled inside		
c. burned inside	d. removed from		
		ices	
c. The fuel tank is comple	etely filled with gasoline.		
d. The fuel tank contains	a little amount of gasoline.		
3. On burning fuel, we obta	in		
a, sound energy.	b. potential energy.		
c. electrical energy.	d. thermal energy.		
(B) Give a reason for the fo	ollowing:		
The importance of wood ar	nd coal as fuels in some houses.		
***************************************			NAME OF TAXABLE PARTY.
2 (A) Put (V) or (X):			
Energy that is produced to move a car.	from burning gasoline, cannot be used	()
2. Burning of all forms of fi	uel produces thermal energy.	()
	to supply the car with gasoline.	()
(B) Mention three differen	nt forms of fuel.		
	g words in front of the suitable sentence : - Wood - Gasoline - Thermal energy]		
1. It is a form of fuel that is	s used in different means of transportation. ()
	o dood in maining measure)
3. It is a form of energy w	hich is produced from burning fuel. (······································)
4. The main source of mo	st energies on the Earth's surface. ()
			12

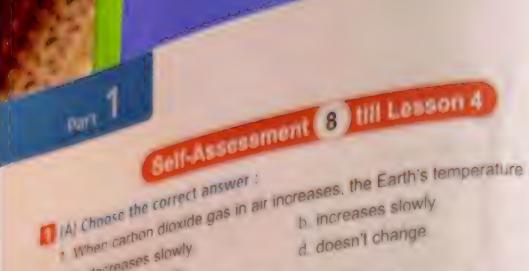
Self-Assessment 6 till Lesson 2

(A) Choose the correct answ	ated by
1. Car engines can be opera	b. coal and wood.
a. coal only.	d. gasoline and natural gas.
c. gasoline only.	
2. Fossil fuels were formed u	under the Earth's surface from dead plants or animals of time.
after a period o	c. very long d. long
a. very short b. short	
3. The two main types of fuel	b. water and wind
a. wood and coal.	d. fossil fuels and biofuels
c. the Sun and the moon.	
(B) Give a reason for the following	owing:
Biofuel is considered as a ren	newable fuel.

The state of the s	
(A) Put (V) or (X):	as alastrical energy
1. Coal can be used to produc	ce electrical energy.
2. Coal, gasoline and wood are	e considered as renewable resources of energy. (
3. The nonrenewable resource	es of energy include coal, gasoline and water.
(B) What happens if?	
	der the Earth's surface over millions of years.
Choose from column (B) what	suits it in column (A):
(A)	(B)
Form of fuel	We can get it from
1 of the trade	
1. Wood	a. wood chips and grass.
1. Wood	b. cutting of trees.
1. Wood 2. Oil	b. cutting of trees.c. decomposition of sea creatures underground.
1. Wood 2. Oil 3. Coal	b. cutting of trees.

Solf-Assessment 7 till Lesson 3

(A) Choose the correct ans	Wer:	
1. To produce steam inside	the electric power station, we have to	
	b. freeze water.	
c. heat water.	d cool first	
The devices in the electricalled	nc power station which operated by stea	m ąrę
a. generators.	b. turbines.	
c. tubes.	d Wires	
3 The generator inside the	e electric power station, turns	
a. water into steam.	b. steam into water.	
c. electrical energy into	kinetic energy	
d. kinetic energy into ele	ectrical energy	
(B) What happens if?	3,.	
A generator in an electric p	power station is damaged.	
(A) Put (V) or (X):		
1. When fuel is burned, it	produces thermal energy.	()
2. Turbines convert kinetic	energy into electrical energy.	()
3. The electrical energy pr	roduced from electric power station	, i
can be used in houses,	streets and factories.	()
(B) Complete the following	ng sentences by choosing the correct ar	Swer from
those between bracke	ets:	15VCF HOIL
those between bracke	ets: newable - renewable) resources of ener	
Those between bracke Fossil fuels are [nonrer used to generate electrical description of the content o	ets: newable - renewable) resources of ener	gy which can be
1. Fossil fuels are [nonrer used to generate electr 2. Turbines in electric pov	ets: newable - renewable] resources of ener- rical energy.	gy which can be f [steam sano]
 Tossil fuels are [nonrer used to generate electr Turbines in electric pow Electrical energy travel through [cars – wires]. From your understanding stations. Put each of the 	ets: newable - renewable] resources of ener- rical energy. ver stations are operated by the effect o	gy which can be [[steam sand] tric power
1. Fossil fuels are [nonrer used to generate electr 2. Turbines in electric pov 3. Electrical energy travel through [cars – wires]. From your understanding stations. Put each of the [Coa	ets: newable - renewable] resources of energical energy. wer stations are operated by the effect of strom electric power stations to houses g of how electricity is generated in electrological electrons. following words in front of its suitable of the electrons.	gy which can be [[steam sand] tric power
1. Fossil fuels are [nonrer used to generate electr 2. Turbines in electric pov 3. Electrical energy travel through [cars – wires]. From your understanding stations. Put each of the [Coa 1. Its movement produces	ets: newable - renewable] resources of energical energy. wer stations are operated by the effect of strom electric power stations to houses g of how electricity is generated in electrological of the suitable of the strong words in front of its suitable of the strong words.	gy which can be [[steam sand] tric power
1. Fossil fuels are [nonrer used to generate electr 2. Turbines in electric pov 3. Electrical energy travel through [cars – wires]. From your understanding stations. Put each of the [Coa 1. Its movement produces 2. It changes kinetic energy	ets: newable - renewable] resources of energical energy. wer stations are operated by the effect of strom electric power stations to houses g of how electricity is generated in electrological of the suitable of the strong words in front of its suitable of the strong words.	gy which can be [[steam sand] tric power



TIAI Choose the correct answer:

- - a decreases slowly

 - decreases fastly 2 All forms of fossil fuel are formed b under the Earth's surface
 - d in the air around us. a above the Earth's surface
- 3 We have to protect rocks of buildings from
 - d carbon dioxide gas. a global warming
 - c acid rain.
- Burning of coal and oil causes the increase of the Earth's temperature.
- 2 (A) Put (V) or (X):
 - 1. Acid rain causes global warming.
 - 2. Mixing of water with oxygen gas produces acid rain.
 - 3. Acid rains have negative effects on both soil and water of lakes.
 - (B) What happens to ...?

The people's health if they live in a city that has too much cars smog.

Scientists do some experiments to know the bad effects of some different sources of pollutions on living organisms.

Match each experiment with its correct observation:

The experiment	The observation
	a. its leaves turn brown and it will die
1. Exposing a dog to cars smog for	a. its loavos tarres
a few minutes	and lungs
2. Placing a building rock in a cup	b. irritation of its eyes and lungs.
contains a sample of acid rain for	
a long period of time	
B. Watering a small plant with acid rain	c. it will decompose into small rocky
for a week	particles.

ault-Assesumen	L 9 Jilli Loggon 5		
(A) Choose the correct answer:			
1 The energy that originally causes th	e formation of fuels is		
G. WIIIG GIRALIV	b. water energy.		
2. As the time passes, the amount of o	d. electrical energy.		
a. Increase	b. decrease.		
C. remain constant	d. increase then decrease.		
3. Burning of fossil fuels produces	o. morease men decrease.		
a. only gases that pollute the air.			
b. only thermal energy.			
c. gases that pollute the air and sola	ar energy.		
d thermal energy and gases that po	ollute the air.		
(B) Give a reason for the following:			
Burning fossil fuels causes global war	ming.		
(A) Put (V) or (X):			
 Renewable forms of fuel can be rep forms of fuel. 	placed faster than nonrenewable	1	1
2. Burning of fossil fuels produces gas	ses that don't cause global warming	1	
3. Burning coal releases gases which		(
(B) What happens to?		,	
	t of gases produced from burning of fos	sil	
Complete the following paragraph b	y using the following words: - heat – raises – gases]		
	els is that when they are burned, they rel	leas	se
that cause air pollution and tra			
the temperature on the Earth, that cau	uses and changes the Earth's clir	nate	8.

Model Exam

on Concepts (3.1) & (3.2)

(A) Choose the correct answer:			
1 A form of biofuels which can be	used in warming houses and cooking		
is	and cooking	9 for a	
a wood	b wind.		
c. water.	d. sand.		
2 You feel warm when you rub you	ur hands together, because		
converts into thermal energy.		energy	
a. kinetic	b. light		
c. electrical	d. sound		
3. All the following are from the har a. the death of trees.	mful effects of acid rain, except		
b. the change in the chemical na	ture of soil.		
c. the increase in the Earth's tem	perature.		
d the change in the chemical nat	ture of lakes.		
4. A form of fossil fuels that was for	med from the decomposition of plan		
is	plan	t remain	ns
a. wind.	b. coal.		
c. wood.	d. sand.		
(B) Give a reason for the following			
A remote controlled toy car needs a	hatteny to make from		
		inother.	
(A) Put (V) or (X):			
1. Grass and wood chips can be use	ed to make a liquid fire!	151	
		(
When pedalling a bike, the chemic into kinetic energy.	cal energy in your body changes		
~	olootria novembre dell'	(
3. The movement of a turbine in the chemical energy,	electric power station produces		
		(
. Energy may be destroyed inside d	lifferent devices.	(

(B) What happens if ...?

Pesticides mix with water of canals and rivers.

(A) Write the scientific term of each of the following	- 09	
1 The main source of most forms of energy on the Earth's surface	(-1
2. The energy stored inside the coal.	()
3. The energy resources that include wind energy, water and solar en	ergy	
	(j
(B) Correct the underlined words:		
1 The amount of biofuels cannot be replaced as quickly as it is used.		
	()
2 Curiosity is a robotic vehicle that is designed to explore the surface	of moor	

(A) Complete the following sentences:

- 1. The change of electrical energy into sound energy in the radio is an example that proves the law of
- 2. The generator in the electric power station changes energy into energy.
- 3. In any energy chain, some of the energy is wasted in the form of

(B) Choose from column (B) what suits it in column (A):

(A)	(B)
1. Oil	a. it is a form of biofuels that is made from wood.
2. Charcoal	b. it is formed when oxygen gas combines with water.
3. Acid rain	c. it is a form of fossil fuels that was formed from the decomposition of sea animals.
	d. it is formed when carbon dioxide gas combines with water in the air.

Unit (3) Concept (1) Lesson (1)

Choose the correct answer:

CI	noose the correct	lestric energy into energy.
1	a. sound energy c. kinetic energy The changes a. electric iron	b. light energy d. solar energy electric energy into heat energy. b. radio d. cellular phone electric energy into light and sound
3	energies. a. cellular phone c. radio	b.TV d. a & b I from all the following devices, except
	a. cellular phone c. radio	b.TV d. electric iron from all the following devices, except
	a. cellular phone c. radio	b.TV d. electric lamp
6	Solar cells change solar en a. electric energy c. sound energy	b. heat energy d. kinetic energy

	'A plact.
a. Electric irons	
c. Solar cells	b. Electric heaters
	d. Motors
CONSUM	ne electric energy.
	b. Batteries
	d. Cellular phones
neat energy is	in the solar heater
ar consumed	b. produced
	d. destroyed
Electric energy is	in the electric book
_ _	b. produced
	al al .
All these devices cons	sume electric energy except in
	b. solar cell
	d. TV
Thecon	tains chemical energy
a. solar heater	b. battery
c. radio	d. TV
Calculators can be op	erated by using
a. solal energy	b. electric energy
	d. sound energy
A gas oven can be op	erated by using
a. solar energy	b. electric energy
c. heat energy	d. natural gas
A/Anis (Operated by electricity
a. TV	b. electric heater
c. radio	d. all the following
	c. Solar cells a. Solar cells c. Solar heaters Heat energy is

G	The distance between Ea	rth and Mars is	million	
	kilometers. a. 54 c. 44	b. 55 d. 45		
(I)	Curiosity is the most famo	us on Mars.		
עי	a. application	b. spacecraft		
	c. robot	d. rocket		
	Robots and vehicles are of	perated by		
T)	a. electric chargers	b. long-term batteries		
	c. solar panels	d.b & c		
Pu	t (/) or (X):			
0	Energy can't be changed f	rom one form to another.	()
0	Electric lamps consume el	ectric energy.	()
0	Solar energy is the energy	consumed in solar cells.	()
5	TV and cellular phones pro	oduce light energy.	()
4	TV and radios consume so		()
5		into electric energy in solar o	cells.(1
0			(4
7	Batteries produce chemic		,	
B		ed by using solar energy.	Anre (
9	•	he most famous robots on M		
1	Robots obtain electricity f	rom solar panels and electric	C	

chargers.



Fill in the gaps using the following words:

(electric – heat – chemical – consumed – produced – TV – Solar cells)

0		produce ele	ctric energy.			
0	The	produce	es sound ene	ergy.		
0	Solar ene	rgy is the energy	/	in solar ce	lls.	
0	Electric e	nergy is the ene	rgy	in solar	cells.	
(3)	Electric i	rons consume		energy	and	produce
		energy.				- of
6	The device	es contain batte	ries that con	itain		energy.
Wr	ite the s	cientific term	1:			
0	Energy pro	oduced from so	lar cells.		(
		nsumed by sola			,)
					(-)
6	A device	that changes	electric en	ergy into	sound	energy.
					(
0	A device	that changes	electric e	nergy into	heat	energy.
					(
(3) A	A device	that changes	solar ene	rgy into e	lectric	energy.
					(
6 A	device th	at changes sola	r energy int	o heat ener	gy.	
					(
7 Ti	hey conta	in chemical er	ergy that c	hanges to	electri	c energy.
					(

5	Co	implete the following:
	1	andproduce sound energy.
	2	and produce light energy.
	3	Electric energy is in cellular phones while it is
		in solar cells.
	4	change solar energy into electric energy.
	G	Cellular phones change energy into and
		energies.
	6	change chemical energy into electric energy.
	7	Spacecrafts needs more than months to reach Mars.
	8	Vehicles on Mars change solar energy into,
		andenergies to operate their
		to move on Mars.
	9	Robots are very far away from any and and
	1	Devices use as a source of energy.
6	Cla	ssify the following devices according to devices need
	for	solar energy or electric energy:
	(9)	
•••		Devices that need electric energy The solar energy electric energy



Unit (3) Concept (1) Lesson (2)

Choose the correct answer:

Energy is very important for most devices to

a. operate b. do their functions

c.move d.all the following

When batteries run out, devices

a. operate b. move

c.stop d.do their functions

Batteries store energy to operate devices.

a. electric b. chemical

c.heat d.kinetic

To make batteries work again, we must

a. charge it b. change it

c. burn it d.a & b

The main source of energy in all devices is the .

a. Sun b. wind

c. water falls d. coal

6 Any energy chain with the Sun.

a.ends b.stops

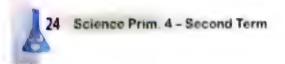
c. starts d. no correct answer

During running, energy stored in food changes to

kinetic energy.

a.electric b.heat

c.chemical d.sound



()	We burn trees to get	energy.
	a. heat	b. electric
	c.chemical	d. sound
	A hair dryer changes el	ectric energy into energy.
	a.kinetic	b. sound
	c.heat	d.all the following
(h)	وام منا السياد	ectric power stations to produce electricity.
1	a. Food	b.Coal
	c.Water	d. No correct answer
(1	The input energy in mol	bile phones is (are)
	a.electric	b. sound
	c.light	d. b & c
(1)	It is to ope	rate any device without the Sun.
	a. possible	b. impossible
	c.acceptable	d.no correct answer
0	When you rub your hand	ds, kinetic energy changes to
	energy.	
	a.light	b. sound
	c.heat	d. electric
O	Theis used	to move things.
	a. dynamo	b. motor
	c. hair dryer	d. electric heater
(L)	Theis used	to obtain electricity.
	a. dynamo	b. motor
	c. hair dryer	d. electric heater

	Driving a bike changes	the energy inside the	e. 1	
	body into kinetic energ	theenergy inside th	e hu	tia,
	a. heat	b. chemical		
	c. potential	d. kinetic		
	change eld	ectric energy into kinetic energy.		
	a. Fans	b. Motors		
	c. Washing machines	d. All the following		
		ctric energy		
	a. consume	b. produce		
	c. lose	d. no correct answer		
19	Heat energy is			
	a. consumed	b. resulting		
	c. lost	d. destroyed		
20	Toy cars change	energy into kinetic energy.		
	a. sound	b. heat		
	-	b. neat		
	c. elastic potential	d alastria		
	c. elastic potential	d. electric		
	c. elastic potential(✓) or (✗):	d. electric		
Put	(/) or (X):			
Put	(or (X): Any energy chain starts w	vith the Sun.	()
Put	(/) or (X):	vith the Sun.	()
10 / 12 \	(or (X): Any energy chain starts w	vith the Sun. we must charge it.	(()
Put 10 / 20 \	(or (X): Any energy chain starts when a battery runs out, Batteries store electric energy	vith the Sun. we must charge it. ergy.	(((1
Put 1 / 2 / 3 8	(or (X): Any energy chain starts when a battery runs out, Batteries store electric energy	vith the Sun. we must charge it.	((gy.	1
Put 10 / 20 \ 30 E	Any energy chain starts when a battery runs out, Batteries store electric endouring running, chemical	vith the Sun. we must charge it. ergy. energy changes to kinetic energ	(1 1
Put 10 / 20 \ 30 E 40 C	Any energy chain starts when a battery runs out, Batteries store electric endouring running, chemical hair dryer changes electr	vith the Sun. we must charge it. ergy. energy changes to kinetic energical energy only.	(
Put 10 / 20 \ 30 E 40 C	Any energy chain starts when a battery runs out, Batteries store electric endouring running, chemical hair dryer changes electr	vith the Sun. we must charge it. ergy. energy changes to kinetic energ	(

	B	Kinetic energy is produced in motors.		(j
	0	Heat energy is resulted from dynamos.		(,
	1	Small watches consume heat energy.		(,
3	W	rite the scientific term:			
	0	It is the energy stored in batteries.	()
	0	The main source of energy.	()
	3	The output energy in the electric iron.	()
	0	The output energy in the small watch.	()
	6	A device used to move things.	()
	6	A device used to get electricity.	()
	0	A device used to light houses.	()
	8	A device used for drying hair.	()
	9	A device used to transfer image and sound.	()
4	Co	mplete the following:			
	1	Energy makes devices and and			
	2	Batteries store energy that is	used to	opei	rate
	3	When batteries run out, we mustthem.	. or		
	4	During running, the energy store body changes to energy.	ed in the	hum	ian
	5	is used in electric power stations to p	roduce ele	ectrici	ity.
	6	Any energy chain starts with the			
		Colores Delega	Forest *	- 22	W

10000

6 Arrange the following energy chains from the start to the end:

Ouring running:



Chemical energy



Kinetic energy



Solar energy

In heating water:



Cutting trees



Burning wood



Solar energy

In mobile phones:



Light & sound energies



Coal



Sun



Cutting trees



Battery in mobile



Electric Power Stations



Unit (3) Concept (1) Lesson (3)

1	Choose	the	correct	answer
---	--------	-----	---------	--------

1	During	, chemical energy changes to kinetic energy
	a. running	b. reading
	c. driving a bike	d. a & c
2	***************************************	ke, a part of the kinetic energy changes the wheelergy due to the friction between the wheeler
	and the road.	· ·
	a. heat	b. sound
	c. light	d. potential
3	conv	ert electric energy to light energy.
	a. Fans	b. Batteries
	c. Electric bulbs	d. Bikes
4	You feelbulb.	when you approach your hand to an electri
	a. cold	b. hot
	c. happy	d. angry
5	Which of the follow	ring statements is correct?
	a. Energy can't be c	hanged from one form to another.
		anged from one form to another.
	c. Energy may be lo	
•	d. Energy can be cre	eated.

		a. Law of Conservation of Energy							
		b. Law of Attraction Force							
		c. First Law of Newton d. Second Law	v of Newton						
2	Co	omplete the following:							
	1	On running, energy changes	s to	ener	gy.				
	2	A part of the kinetic energy in a moving c due to the friction between the	_						
	3	Electric lamps changee	energy to						
	4	You feel when you approach lamp.	your hand to a	n elect	ric				
	6	Energy is neither nor	, but it						
3	Wı	rite the scientific term:							
	1	A device used to light houses.	()				
	2	The energy stored in food.	()				
	3	The energy produced due to friction.	()				
	4	Energy is neither created nor destroyed.	()				
4	Pu	t (/) or (X):							
	1	Energy can be changed from one form to	another.	()				
	2	You feel cold when you approach your h	and to an elec	tric bu	lb.				
				()				
	3	Electric lamps convert electric energy to	light energy.	()				

"Energy is saved", this is known as the



5	Study the opposite figure, then choose the correct answer						
	1	The input energy isenergy. (chemical – kinetic - electric)					
	2	The output energy isenergy. (chemical - kinetic- electric)					
	3	As the speed of the car increases, its kinetic energy					
		(increases – decreases – doesn't change)					
	4	The driver's body move when he/she stops,					
		(forward - backward - upward)					
	(3)	The wheel of the car becomes after stopping					

Mention the input and output energies of the following figure

(cold - hot - weak)

Figure	Input Energy	Output Energy
1 💡	•••••••	
2		••••
3		••••
4	•••••••••••••••••••••••••••••••••••••••	***************************************
5	•••••••••••••••••••••••••••••••••••••••	•••••



Unit (3) Concept (1) Lesson (4)

	oose the correct ans	wer:	
0	The input energy in the	e hair dryer is energy.	
	c. sound	b. heat	
2	The function of a hair d	d. kinetic	
	a. air movement	b. motor sound	
	c. drying hair	d. no correct answers	
3	Heat energy is the	energy in the hair dryer.	
	a. input	b. output	
	c. lost	d. no correct answers	
	Kinetic energy is the	during running.	
	a. input	b. output	
	c. lost	d. no correct answers	
5	The output energy in t	he hair dryer is energy.	
	a. light	b. sound	

Complete the following:

c. data processing

1	The function of the hair dryer	is	**************************************		
2		. and	***************************************	energies	are
	resulted in a hair dryer.			_	
3	resulted in a mobile phone.	. and	***************************************	energies	are
4	Electric energy is the	**********	. energy in mobi	ile phones	and

d. all the following



U	nit (3)		
	But (1)	or	(X)

- Air movement is the function of the hair dryer. Put (\checkmark) or (x):
 - Kinetic energy is produced in the hair dryer.
 - Data processing is the output energy in mobile phones.
 - Energy is always saved and not destroyed.
- Study these figures and classify the energies to &

Electric energy - Heat energy -Sound energy – Kinetic energy



Input Energy



Electric energy - Heat energy - Light energy



 input Energy
 •••••••••••

-[Outp	ut Enn	QΥ
,		•• •• •	



Science Prim. 4 - Second Term



Unit (3) Concept (1) Lesson (5)

Choose	the	correct	answer:

- 60 Ecologists study the flow of energy in difficult ecosystems, such as the
 - a. North Pole
 - b. bottom of oceans
 - c. forests
 - d. a & b
- - a. causes pollution
 - b. causes climate changes
 - c. affects the living organisms
 - d. no correct answer
- design solutions for the mobile screen to obtain light energy.
 - a. Ecologists
 - b. Engineers
 - C. Designers
 - d. No correct answer
- - a. consume a small amount of energy in a short time
 - b. consume a small amount of energy in a long time
 - c. consume a large amount of energy in a short time
 - d. consume a large amount of energy in a long time



2	Write	the	scientific	term:

•	They study the flow of energy in difficult ecosystems.			
	(
0	They modify the mobile battery to last for a longer time after			
	charging it.			
3	Areas affected hardly by decreasing the flow of energy to it.			

Co	mplete the following:			
0	study the flow of energy in difficult ecosystems,			
2	Any change in the flow of energy in difficult ecosystems affects			

- Mobile phones consume a amount of energy in a time.
- modify the mobile battery to last for a longer time after charging it.





1	Che	Choose the correct answer:				
	0	Curiosity is the most famous on Mars.				
		a.application	b. spacecraft			
		c.robot	d.rocket			
	2	To make a battery work again, we mustit.				
		a. charge	b. change			
		c. burn	d. a & b			
	3	is used in electric power stations to produce electric				
		a. Gasoline	b. Coal			
		c.Water	d. No correct answer			
	4	Which of the following statements is correct?				
		a. Energy can't be changed from one form to another.				
		b. Energy can be changed from one form to another.				
		c. Energy may be lost or o				
		d. Energy can be created.				
	6	design solutions for the mobile screen to obt				
		light energy.				
		a. Ecologists	b. Doctors			
		c. Engineers	d. No correct answer			
2	W	rite the scientific tern	n:			
	1	The energy stored in food. A device used to transfer images and sounds.		()		
	2			()		
	3	The energy produced du	e to friction.	(
		They study the flow of energy in difficult ecosystems.				
	4	They study the flow of er	nergy in difficult ecosys	tems.		



3 c	omplete the following:
0	Energy makes devices and
2	is used in electric power stations to pro-
(3)	and energies to operate the
O Put	You feel when you approach your hand to an electrical section of (X):
① ② ③ ④	Air movement is the function of the hair dryer. Any energy chain starts with the Sun. The output energy in a mobile phone is light energy only.(The mobile phone consume a small amount of energy in a long time.

Complete the following table:

Figure	Input Energy	Output Energy
1 3		
2		
3		

6 What is meant by:

Law of Conservation of Energy.





(C	hoose the correct	answer:			
	(1	Ecologists study the flow of energy in difficult ecosystems, such as the				
		a. North Pole	b. bottom of ocean	ns		
		c. forests	d. a & b			
	(?	Heat energy is	in solar heaters.			
		a. consumed	b. produced			
		c. lost	d. destroyed			
		All these devices co	All these devices consume electric energy, except			
		a. solar cells	b. radios			
		c. TV	d. mobiles			
	0	A hair dryer changes electric energy into energy.				
	•	a. kinetic	b. sound			
		c. heat	d. all the following			
		energy	is stored in trees.			
		a. Solar	b. Electric			
		c. Chemical	d. Potential			
2	Wi	rite the scientific t	erm:			
	1	They modify the m	obile battery to last for	longer time after		
		charging it.		()		
	0	Energy is neither crea	ated nor destroyed but it o	can be changed.		
				()		
	3	The energy stored in	side batteries.	()		
	4	Energy consumed by	a solar heater.	()		

Unit	1
Complete the following:	
 Spacecrafts need more than months to reach M. The electric iron changes energy to energy. 	gil
The outcoming energy in dynamos is	
A part of the kinetic energy in a moving car changes to due to the between the wheel and the road.	
Correct the underlined words:	
The distance between Earth and Mars is 45 million km.	
When batteries run out, devices still work. (-)
The input energy in a solar cell is electric energy. (.)
Which of the following devices depend on solar energy to work	:
6 What is meant by:	
- Solar Cell.	
•••••••••••••••••••••••••••••••••••••••	



Unit (3) Concept (2) Lesson (1)

Choose	the	correct	answer
---------------	-----	---------	--------

0	The main source of fuel is	the
	a. wind	b.waterfalls
	c.sun	d.no correct answer
2	Fossil fuel is extracted from	m
	a. mountains	b. forests
	c.rivers	d.underground
3	Vehicles need	to move.
	a.food	b. fuel
	c.water	d.no correct answer
4	is (are) from	the importance of fuel.
	a. Operating cars	b. Generating electricity
•	c.Warming houses	d. All the previous
5	When the fuel inside the	car runs out, the car
	a.stops	b. moves
	c.a & b	d.no correct answer
6	The wheels of the car rot	tate when the fuel inside the car
	a.runs out	b. ends
	c.burns	d.no correct answer
7	is (are) from	the examples of fossil fuel.
	a.Coal	b. Natural gas
	c. Petroleum	d. All of the previous



2	Correct the underlined words:	
	Any energy chain ends with the Sun	
	Possil fuels are extracted from mountains	S.
	When fuel burns inside a car, the car stop	6.
	When fuel runs out, the car moves.	
	Petroleum is an example of biofuel.	
3	Complete the following:	
	Any energy chain starts with the	
	fossil fuel.	are examples of
	The wheels of the car when the engine.	fuel hum inside the ce
(The car stops, when the fuel	
		re from the importance
4	Write the scientific term:	
	1t burns inside the car engine to make the	car move.
	The main source of fuel.	i.
5	What is the importance of:	(
	Fossil fuel.	
	Fuel.	



Unit (3) Concept (2) Lesson (2)

c. air pollution

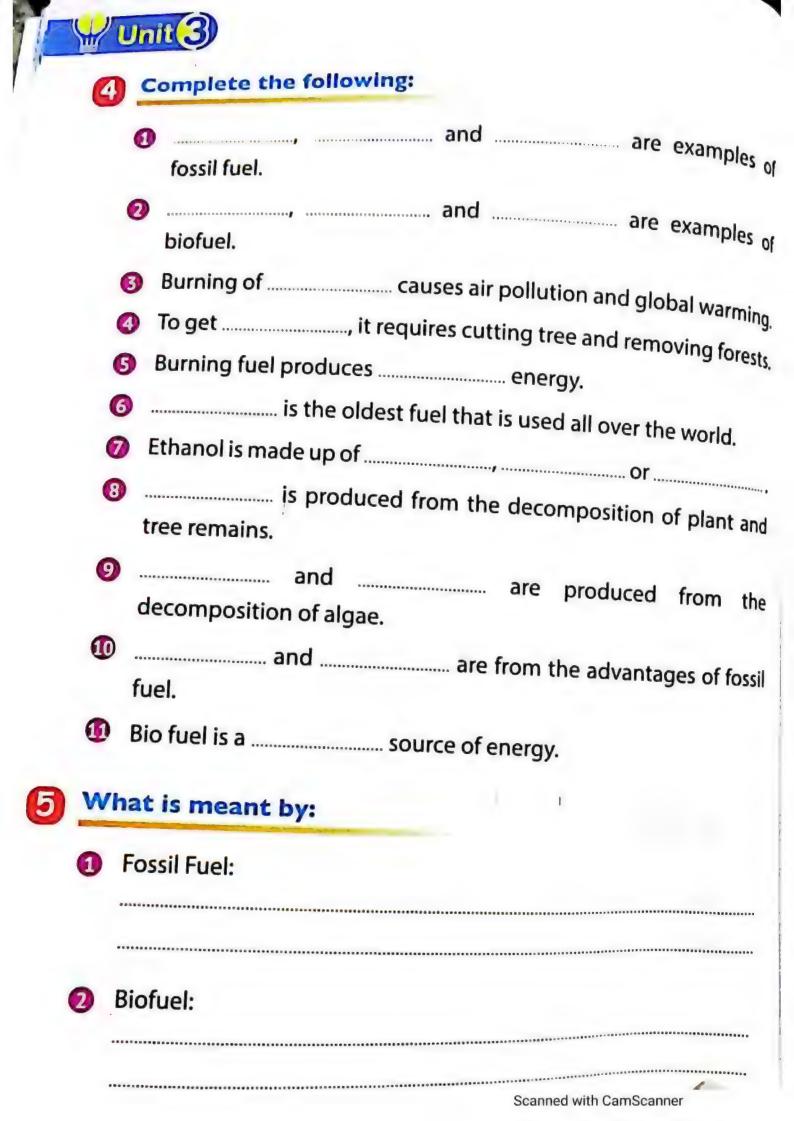
		(5)	
1	Ch	oose the correct a	
		Rurning fuel produce	s energy.
	1	a. electric	b. kinetic
		notontial	d. heat
		is the ol	dest fuel that is used all over the world.
	2		b. Wood
		a. Coal c. Petroleum	d. Natural gas
		c. Petroleum	-renewable source of energy.
	3		b. Biofuel
		a. Fossil fuel	d. Wind
		c. Sun	uel made of living organisms that can be
	4		uel made of hving organis
		planted.	b. Biofuel
		a. Fossil fuel	d. Gasoline
		c. Petroleum	
	5	is an exa	ample of bloluel.
		a. Petroleum	b. Coal
		c. Corn	d. Natural gas
	6		example (s) of fossil fuel.
		a. Petroleum	b. Coal
		c. Natural gas	d. All the following
	7	From the disadvanta	ages of the overuse of fossil fuel is (are)
			b. removal of forests
		a. cutting trees	d. a & b
	_	c. air pollution	
	8		ges of biofuel is (are)
		a. cutting trees	D. Terrioval of forests

d.a&b



11/10 1414
plants or
• • • • • • • • • • • • • • • • • • • •
n of old
, except
except

6		rrect the underlined words:	
	0	Coal is the oldest fuel that is used all over the v	vorld.
			(
	0	Burning fuel produces light energy.	()
	(3)	Petroleum is a renewable source of energy.	(
		Corn is a non-renewable source of energy.	(
	(5)	Charcoal is made up of grass, corn or wood ch	nips. (
	6	To get fossil fuel, it requires cutting trees & re	moving forests.
			()
	7	Petroleum is produced from the decomposition	ion of tree remains.
			()
	8	Coal is produced from the decomposition of a	algae.
			()
	9	Burning of biofuel causes air pollution & glob	al warming.
			()
3	W	rite the scientific term:	
	0	It is the fuel resulting from the decomposit	ion of the remains
	0	of living organisms that lived on the earth m	illions of years ago
		5 5 The state of the curtiful	()
	2	It is the fuel made from the living organisms	
		organisms	()
	3	It is made up of grass, corn or wood chips.	()
	4	A Biofuel that made up of wood.	
			()
	5	It is produced from the decomposition of plan	
		It to another a form the last of	()
	6	It is produced from the decomposition of	
			()



6 Label the following figures, then classify them into biofuel or fossil fuel:

Figure	Represents	Biofuel	Fossil fuel
1	Wood	√	
2		•••••••••••••••••••••••••••••••••••••••	***************************************
3		***************************************	••••••
4	· · · · · · · · · · · · · · · · · · ·	•••••••••••••••••••••••••••••••••••••••	•••••••••••••••••••••••••••••••••••••••
5		***************************************	***************************************

7	Give	reason	for:

1	Fossil fuel is a non-renewable source of energy.
---	--

2	Biofuel is a renewable source of energy.



Unit (3) Concept (2) Lesson (3)

0 9	choose the correct	answer:
0	The remains of old o	organisms are buried under
	a. rocks	b. sediments
	c. a & b	d. no correct answer
0	Under the effect of hi are transferred to for	gh, the remains of old organisms
	a. temperature & pro	essure
	b. temperature & for	ce
	c. temperature & en	ergy
	d. no correct answer	
(1)	is (are)	burnt and producing high heat energy.
	a. Petroleum	b. Natural gas
	c. Coal	d. All the previous
4	moves t	he turbines in electric power stations.
	a. Air	b. Steam
	c. Water	d. No correct answer
(5)	Electricity transfers th	rough wires to cities.
	a. long & huge	b. long & thin
	c. short & huge	d. short & thin
Co	mplete the followi	ng:
0	The remains of old or	ganism are buried underand
		m change into

	3	Electricity is generated by burning or
		in electric power stations.
	4	The petroleum or natural gas is burnt and produces
	•	energy.
	•	starts to move turbines in electric power stations.
	6	A dynamo converts energy in the turbines into
	6	energy.
3	W	rite the scientific term:
		It the energy produced from burning fossil fuels. ()
	0	The device which changes kinetic energy into electric energy.
	2	()
4	ele	nese steps represent the generation of electricity in ectric power stations. Arrange the following steps from e start to the end:
	_ <	Steam starts to move turbines.
		The petroleum or natural gas burns and produces thermal energy.
		lectricity transfers through huge wires to cities.
		he dynamo converts kinetic energy in turbines into electric energy.
		Thermal (heat) energy is used to heat water and produce steam.
	•	
	•	
	•	
	•	
	•	



Unit (3) Concept (2) Lesson (4)

Choose the correct answer:

n	Petroleum oil is conside	ered as asource of energy
0	a. permanent	b. renewable
	c. non-renewable	d. no correct answer
0	Water is considered as a	source of energy.
•	a. permanent	b. renewable
	c. non-renewable	d. no correct answer
	The amount of	is limited on Earth.
3	a. biofuel	b. fossil fuel
	c. a & b	d. no correct answer
4	To reduce air pollution, w	ve must
	a. walk instead of driving	cars
1	b. use public transportat	ion
	turn off lamps if we do	n't need them
c	. all the previous	
5 T	he rate of consumption	of fossil fuel is the rate of
it	s formation.	
a	. more than	b. less than
c.	equal to	d. no correct answer
Pe	etroleum is formed from	the decomposition of
a.	bacteria ·	b. diatom algae
c.	fungus	d. euglena



2	Co	mplete the following:	
	0	The amount of fossil fuel is on Eart	h.
	0	The rate of formation of petroleum is of its consumption.	than the rate
	0	The chemical structure of water and petroleum	
	0	Petroleum is formed from the decomposition organisms called	
	6	Diatom algae is very organism,	smaller than the
	6	Water is considered as a source of	energy.
3	Pu	t (/) or (X):	
	0	Water is a non-renewable source of energy.	()
	0	The chemical structure of water and petroleum I	s different. ()
	3	The amount of petroleum on Earth is limited.	()
	4	We must light up electric bulbs and electric denneed them.	vices if we don't ()
4	W	rite the scientific term:	
	0	They are very tiny organisms, smaller than the	head of a pin.
	2	The amount of it on Earth is limited.	()



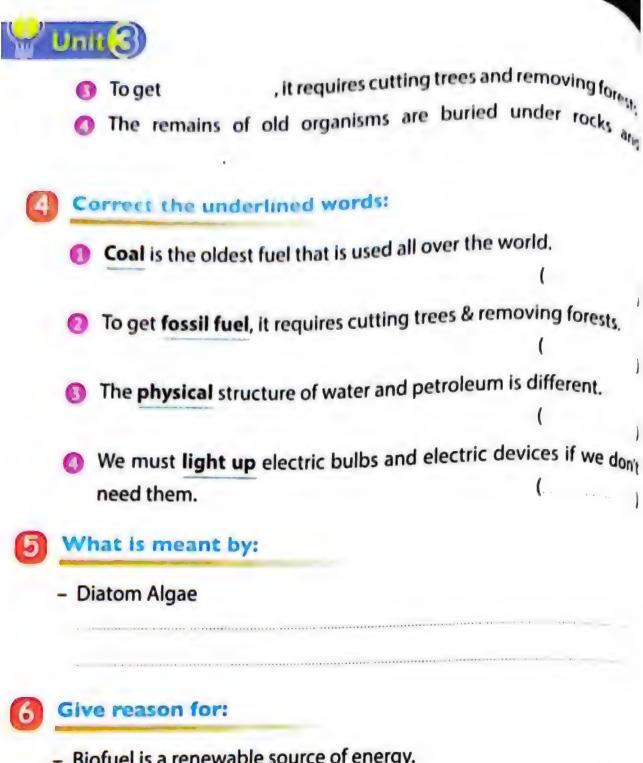
6	Give	reason	for:
	GIVE	Leason	

- Water is a renewable sources of energy.
- Petroleum is a non-renewable sources of energy.
- How to reduce the burning of fossil fuel:
 - 6
 - 2
 - 3
- Mow to reduce the consumption of water:

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Unit (3) Concept (2)

	hoose the correct				
0	Fossil fuel is extract	ed from .			
U	a. mountains	b. forests			
	c. rivers	d. underground ear			
0	is the	oldest fuel that used is all ov	er the world	d.	
2	a. Coal	b. Wood			
	c. Petroleum	d. Natural gas			
0	. Is an e	xample of biofuel.			
(3)	a. Petroleum	b. Coal			
	c. Corn	d. Natural gas			
0	moves	the turbines in electric pow	er stations.		
	a. Air	b. Steam			
	c. Water	d. No correct answer	•		
6	Petroleum is formed from the decomposition of				
	a. bacteria	b. diatom algae			
	c. fungus	d. euglena			
W	rite the scientific	term:			
0	It the energy produc	ed from burning fossil fuel.	()	
2	The amount of it on	Earth is limited.	(.)	
3	It is made up of grass	s, corn or wood chips.	()	
0	The main source of fo	uel.	(.)	
Co	mplete the follow	ing:			
0	Any energy chain sta	rts with the			
0	**************************************	and	are from	the	
	importance of fossil f	uel.			



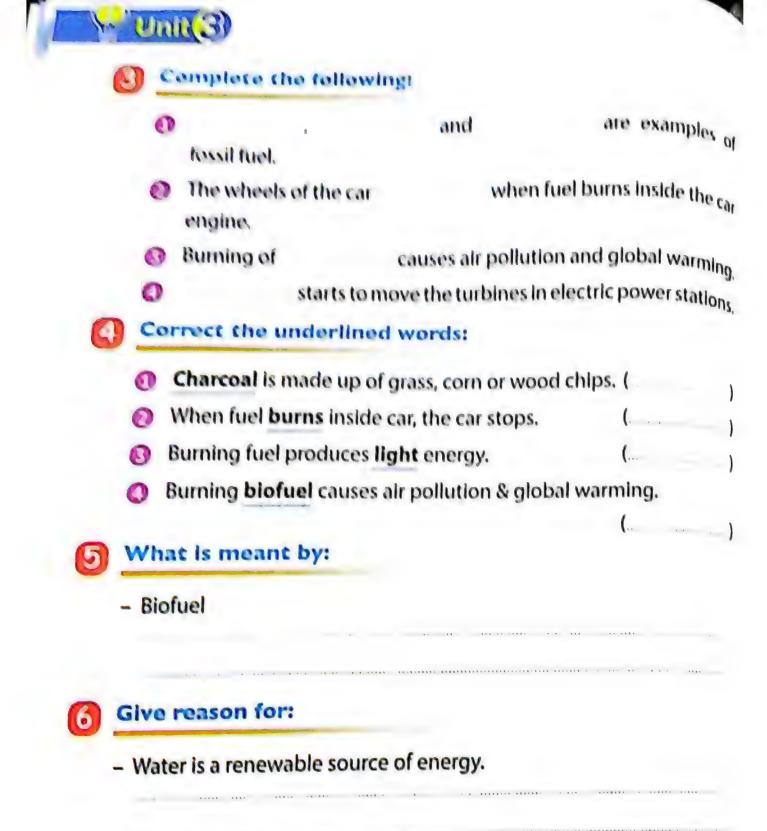
Biofuel is a renewable source of energy.

What is the importance of:

Dynamo



CI	100se the correct an	swer;	
-	The wheels of the car rol	tate when the fuel inside the car	
0	a. runs out	b. ends	•
	c. burns	d. no correct answer	
0	ls produc	ed from the decomposition of plants	or
	a. Petroleum	b. Natural gas	
	c. Coal	d. Benzene	
6	Ethanol is produced fro	om	
	a. grass	b. corn	
	c. coal	d. a & b	
4	The remains of old org	anisms are buried under	
	a. rocks	b. sediments	
	c. a & b	d. no correct answer	
5	Water is considered as	asource of energy.	
	a. permanent	b. renewable	
	c. non-renewable	d. no correct answer	
) <u>v</u>	Vrite the scientific to	erm:	
1	The device which char	nges kinetic energy into electric energy.	
		(.)
0	They are very tiny orga	nisms, smaller than the head of a pin.	
		()
3	It is produced from the	e decomposition of plant and tree remain	15.
)
4	It burns inside the car e	engine to make the car move. (_)



What is the importance of:

Fossil fuel



Concept 3-1 Devices and energy

The law of conservation of energy: Energy can neither be created nor destroyed, but only converted (change) from one form of energy into another.

Device	Function	Consumed (input) (used) energy	Produced (output) energy
Hair dryer	Dry our hair	Electrical energy through wire (cord)	Thermal, sound and kinetic energies
Soap dispenser	Moves the soap to your hand	Potential energy (stored in the spring)	Kinetic energy (the movement of soap upward)
Washing machine	Washes our cloth	Electrical energy	Kinetic, thermal and sound energies
fan	Produce fresh air	Electrical energy	Kinetic energy and sometimes thermal and sound







311	ice 1987	~	
Blender	Mix food	Electrical energy	Kinetic energy + sound energy
Television	Showing us movies	Electrical energy	Light ,sound and sometimes thermal and kinetic energies
Electric bulb and table lamp	Lighting up	Electrical energy	Light and thermal energies
Hand held fan	Providing cooling effect	Chemical energy	Kinetic energy and when the fan moves it will produce sound energy
Dynamo	Generate electricity	Mechanical energy (kinetic)	Electrical energy





Sinc	e 1987	Biss	
Battery powered clock 11 12 1 10 3 8 7 6 5	Showing the time	Chemical energy	Kinetic and sound energies
Flash light	Lighting up	Chemical energy	Light and thermal energies
Hand bell	Alerting	Kinetic energy	Sound energy (when the bell rings)
Electric heater	Warming	Electrical energy	Thermal energy
Drums	Providing music	Kinetic energy	Sound energy
Calculator (use solar panel)	make some calculations	Solar energy	Electrical energy

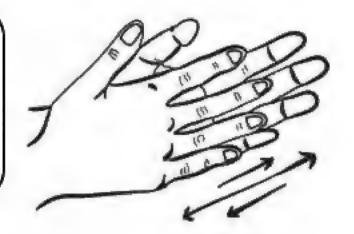






Sir	ne 190/	~	
Iron	Remove wrinkles.	Electric	Thermal energy (heat)
Speakers (O)	Provide sounds	Electric	Sound energy and sometimes kinetic energy.
Motor of a toy car (uses battery)	Make the toy car move	Chemical energy	Kinetic energy and sometimes thermal.
Calculator uses battery	make some calculations	Chemical energy	Electrical energy

Hand rubbing changes the kinetic energy into thermal energy



Energy chain: it is the flow of energy from one level (the source) to another level.

And it often start with the sun, as most of energy is made inside the sun.

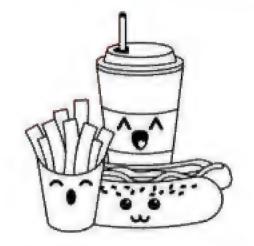
. (we can see the pass of energy from the sun to different devices(path tracking).







Ex1) Energy chain when eating food.



The sun emits

(produce) light energy causes the growth of trees The plant converts light energy into stored chemical energy in form of sugar.

When we eat, we will take this stored energy inside our body and change it into kinetic energy when we move.

Ex 2) Energy chain when heating a pot of water over a fire.

The sun emits

(produce) light energy, causes the growth of trees The tree converts light energy into stored chemical energy in form of sugar.



When we burn the wood of the trees it will produce thermal energy which heats the water inside the pot.





Ex 3) Energy chain while riding a bike

The sun emits (produce) light energy, causes the growth of trees

The plant converts light energy into stored chemical energy in form of sugar.

When we eat, we will take this stored energy inside our body and change it into kinetic energy when we ride the bike and push the pedals causes the bike to move. and also thermal energy due to the friction between the tire and the road

Ex4) Energy chain in a hair dryer



The sun emits

(produce) light energy, causes the growth of trees

Coal which produced from dead trees millions years ago.(storing chemical energy)

Then the thermal energy is converted into kinetic energy

This kinetic energy will operate devices to generate electrical

Is used in electric power stations (power plants) to be burnt (change chemical energy) and produce thermal (heat energy) to power certain devices.

This electrical energy goes through electric copper wires to reach the hair dryer to be operated (produce thermal, kinetic and sound energies).





Ex5) Energy chain when a light bulb is switched on



After the same part of (Ex4) When you turn on a light bulb, The electrical energy goes through electric copper wires to reach the light bulb and changes into light and thermal energy

Ex6) Energy chain in the mobile phone

After the same part of (Ex4) when we recharge it with electrical energy it will be stored inside the battery as chemical energy

This chemical energy will change into light energy when it illuminates and sound energy when it rings ,and sometimes thermal energy when the phone is heated up and kinetic energy when the phone vibrate.

Ex7) Energy chain in remote- controlled cars

Many toys like (cars, trucks, planes... etc.) maybe operate remotely by a remote and this car needs battery and this battery needs to be recharged (by connecting (plug) the device to recharger or change the batteries) so after the same part of (Ex4) when we recharge it with electrical energy it will be stored inside the battery as chemical energy









Ex8) Energy chain in Mars exploration rover

- -It's about 54 million km from Earth to mars planet and the spacecraft will take 6 months to reach there.
 - We send missions with a remotely operated vehicles or robots (Mars rover curiosity) (Mars exploration rover) (Curiosity exploration rover)

1-Solar panels or a specific type of batteries recharged by solar energy (sun) (input)

2-Solar energy will be transformed into electrical energy

4- The electrical energy will be transformed into kinetic and thermal energies when It moves. (out put)

3- The electrical energy will recharge the batteries of the robot and power its sensors.





-Some of output energies do not help the device to operate and do its function called (wasted energy) foe example the output energies of a hair dryer are thermal and kinetic (useful to operate the device) but the sound energy do not help it (wasted energy)

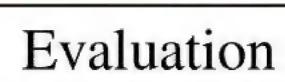
- Some of the produced energy escape or leaks out (do not help the device like heat as not all the input energy converted into operated output energy.

So Most devices depend on electricity, which is generated from the energy of the sun in different ways as we see, but if the device depends on a rechargeable battery, so the electrical energy will be stored inside it in form of chemical and when we operate the device it will change the chemical into electrical to operate the device

(electrical(input energy) • chemical • electrical • output energy (depends on the device)), and when the device depends on a non-rechargeable battery, so it has a stored electrical energy in form of chemical and when we operate the device it will change the chemical into electrical to operate the device(chemical(input) • electrical • output energy (depends on the device)).







Choose the	he correct answ	ver:
1- It takes sev Earth to Mar		for a spacecraft to travel from
Earth to Mai	S.	
a) days	b) months	c) hours
2- When you	use the hand b	ell, the energy changes
into sound en	ergy.	
a) kinetic	b) light	c) thermal
	` `	ge) the light energy from the Sun into
sugar.	ergy which is su	ored inside the plant in the form of
O		
a) electrical	b) chemical	c) sound
4- In the was	hing machine, t	he energy changes into
kinetic and so	ound energies.	
a) electrical	b) light	c) potential
5- In the soap	dispenser, the	energy changes into
kinetic energ	y.	
a) sound	b) electrical	c) potential
6- Which sen	tence shows the	e energy changes in the flashlight in a
correct order	?	
a) Chemical	Electrical Light	t. b) Chemical Light Electrical
c) Light Che	emical Electrical	d) Electrical Chemical Light
7-Electric win	res are made of	•••••
a) copper	b) wood	c) glass





Put (\lor) or (x):

1- Energy may be destroyed inside different devices.	()
2-We can continue to move a toy car even after its batt	tery	
run out.	()
3- Most of the energy chains start with the moon.	()
4-The electric fan changes electrical energy into kinetic	c	
energy.)
5-There is a stored chemical energy in the food we eat.	. ()
6-When pedaling a bike, the chemical energy in your b	oody	
changes into kinetic energy.	()
Write the scientific term (who am i):		
1-The energy that is used to operate an electric heater.	()
2-It is produced from the remains of dead trees buried	under the	
Earth's surface over millions of years.	()
1- The energy that is produced from the electric power		
stations and flows through wires.	()
4-The energy that is stored in both batteries and food.	()
5-The energy produced when the wood of trees is		
burned	()

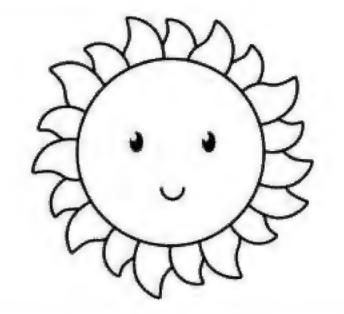






Concept 3-2 About fuel

-The main source of energy is the sun.



Types of energy resources

1) Renewable energy resources

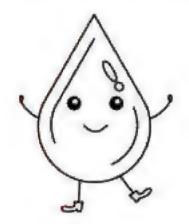
-They are natural resources that can (renew) replace the part that has been consumed (used) which we used it to transform it into another form after a short time, so it will

2) Non-renewable energy resources

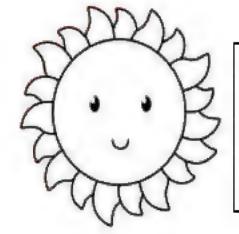
-They are natural resources that cannot be (renewed) replaced in a short time, as we use it in a rate faster

Examples

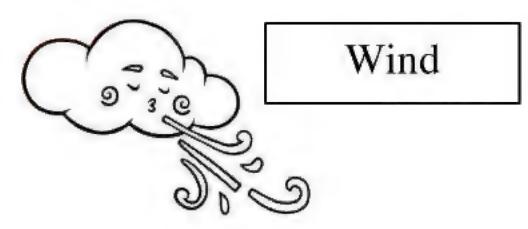
Examples



Water or hydroelectric energy

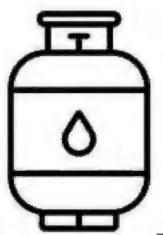


Sun (solar energy)

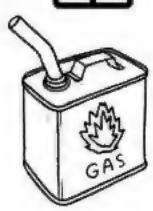




Coal



Natural gas



Gasoline made of (oil)

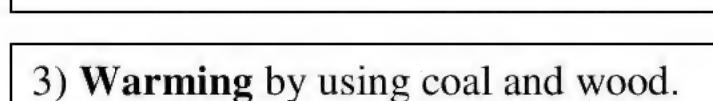


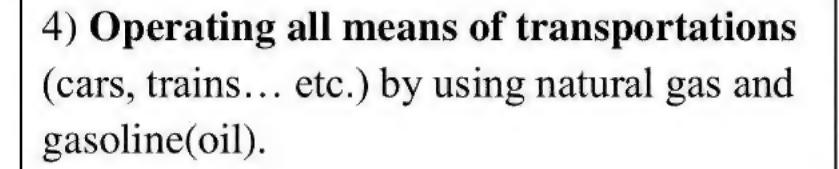


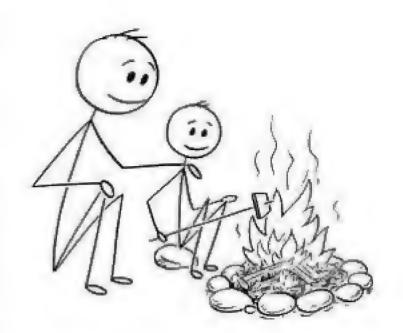
Fuel: it is any substance that produces thermal energy when it is burned

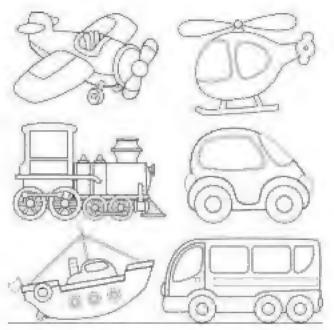
Examples: Coal, natural gas and gasoline (oil)

- 1) Cooking food by using coal, natural gas and wood.
- 2) Generating (producing) electricity by using gasoline(oil), natural gas and coal.







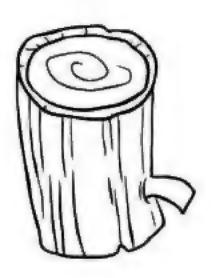


Types of fuel can be classified into:

1)Biofuel: produced from living organisms that can be planted (plants), and it is a renewable energy resource that is continually replaced when the plant grow (renewable fuel) and its primary source is the sun.

Examples

- 1)Wood: oldest fuel used in warming and cooking.
- 2) Charcoal: made from wood (when we burn wood it will be produced) (very important)
- 3) Some types of plants such as grass, corn and wood chips, they used to make liquid fuel.





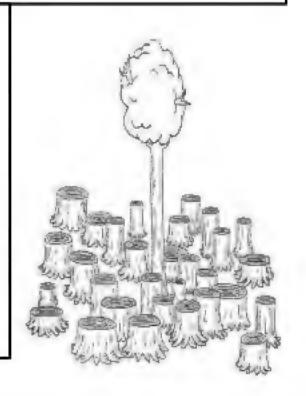






Conservation (saving or keeping) (not to run out or not to be finished) of biofuel: Although biofuel is a renewable energy resource, it should be conserved (rationalized).

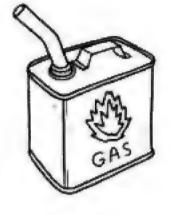
-Some people who use wood as a source of energy will cut down the trees rapidly (called deforestation) causes negative (bad) effect on the environment, so we need to use it wisely (continuously rationalized) so that it will not run out.



2) Fossil fuel: produced from old living organisms (plants or animals) that were died, buried and decomposed (changed into smaller parts) over a long period of time (millions of years), (non-renewable energy source) (runs out faster than it can be renewed) (its primary source is the sun)

Examples

1)Gasoline (oil) and natural gas (made from the decomposed remains of marine organisms(sea animals)



2) Coal: is formed when the remains of the plants were decomposed, so there is a difference between the coal and charcoal.

Conservation (saving or keeping) (not to run out or not to be finished) of fossil fuel: is a non-renewable energy resource, it should be conserved (rationalized), by using alternative (another) resources, because they cannot be easily renewed.





Formation of coal:

1)300 million
years ago large
areas of the
earth were
covered with
swamps, with a
lot of plants
growing nearby

2) When those plants died, their remains will decompose and covered by hundreds of meters of (mud and rocks)

3) There is high (extreme) heat and pressure those remains will change into coal

Gasoline (Oil) and water

-Gasoline (Oil) and water are resources that are used by humans to generate energy, as Gasoline (oil) is a non- renewable resource and water is renewable resource.

-Oil has structure (shape) differs from water.

Formation of oil

1) When marine organisms died, their marine settle on the ocean floor (bottom).

2) Over millions of years, layers of sediments and rocks cover the remains of them and this will cause an extreme heat and pressure.

3) Finally those remains converted into oil (Gasoline)







Conservation of oil: to avoid running out of the oil

- 1) Reduce the use of private vehicles (cars)
- 2) use public means of transportation (buses and trains)

Conservation of water: we should use it carefully

- 1) Avoid wasting or polluting water
- 2) Growing plants that do not need to large amount of water

Some methods of conserving fossil fuels

- 1) Walking or using bicycle instead of driving a car.
- 2) Replacing fossil fuels with renewable energy resources such as a)solar energy b) hydroelectric energy c) wind energy.

(Conservation of electricity)

- 1)Turning off the lights when you are not in the room
- 2)Un plugging electrical devices (appliances) when not in use.

How fossil fuel is used to produce electricity (electrical energy) in electric power stations (power plants)

1)Fuel burns

-When the fuel burns it produces thermal energy

2)Steam rises

- This thermal energy is used to heat water producing steam





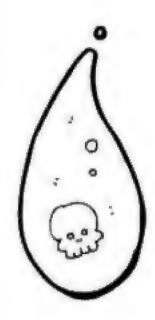
- 3) Steam turns turbines
- -the steam goes inside the tubes to operate turbines.
- 5) Electrical energy is transferred to homes
- Through cables (wires) to operate different devices.

- 4)Turbines turn generators
- -The movement of turbines produces kinetic energy which is used to operate the generator to transform it into electrical energy.
- -Using renewable energy resources is more expensive than using fossil fuels, so people will extract fossil fuels to operate and power everything around them.

So they will burn fossil fuels to generate electricity, some harms to the environment will be produced (due to carbon dioxide gas (produced during burning)).

Harms of burning of fossil fuels on the environment

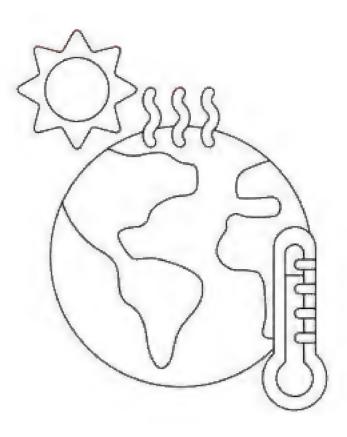
- 1)Acid rains: when carbon dioxide gas combine with water in the air it will form (carbonic acid) so when it rains it will bring this substance with it to us. So it causes
- a)The death of trees
- b) Decomposition (breaking) and dissolving of some rocks and bricks of buildings.
- c)Chemical changes in the structure of lakes (water) causing the death of fish
- d) Chemical changes in the structure of soil







2) Global warming: by increasing the amount of carbon dioxide gas in the air, it will form a layer in the atmosphere that traps heat above the Earth's surface, causing a raise in the temperature (and this is global warming).



-To reduce acid rains and global warming

We should reduce our consumption (usage) of energy, so the amount of burning fossil fuel and carbon dioxide will be reduced.

Some sources of pollution in big cities:

- 1) Burning fuels: produces smog, which pollutes the air
- 2) Pesticides: used on farms are mixed with water in canals and rivers, this leads to pollution of soil and water.
- 3) Using chemicals in factories pollutes the air, water and soil.

Some effects (impacts) of air pollution on human's health

- 1) Smog from cars cause irritation of our eyes and lungs
- 2) Smog contains tiny particles, o when we breathe it will enter our respiratory system and irritate the lungs and damage the tissues of the respiratory system.



Choose the correct answer:

1-In hydroelectric power,	what is necessary	for the production of
electrical energy?		

electrical energy?
a)High amount of air
b)High intense sunlight
c)Dams filled with water
2 it is a substance that produces thermal energy when it is burned
a) Water b) coal c) wind energy
3 They are natural resources that can (renew) replace the part that has been consumed.
a) Renewable energy resources
b) non - Renewable energy resources c) gasoline
4- Burning fossil fuels produce
a) Oxygen gas b) carbon monoxide c) carbon dioxide
5- Bythe amount of carbon dioxide gas in the air, it will form a layer in the atmosphere that traps heat above the Earth's surface, causing a raise in the temperature.
a) Decreasing b) increasing
6 is the result of decomposing of plants.
a) Charcoal b) coal c) oil







Put (\checkmark) or (x):

 Cars needs source of energy to move.)
2- The fuel burns inside the car engine, allowing the engine		
to rotate the Wheels.	()
3- The gases emitted by burning of fossil fuels pollute the		
environment.	(
4- Using cars instead of bicycle is one way to conserve		
fossil fuel.	()
5- Producing energy from renewable resources is less		
expensive than Producing energy from fossil fuels.	()
6- The amount of fossil fuel on Earth planet is unlimited.	()
7- Gasoline (oil) is a non-renewable resource and water is		
renewable resource.	()
8- Acid rains causes chemical changes in the structure of		
lakes(water) causing the death of fish.	()
9- Burning fuels: produces smog, which pollutes the air.	()

Complete:

1)(living organisms –grass- renewable –oil- corn-non-renewablethe sun- millions of years –coal)

Points of comparison	Biofuel	Fossil fuel
Definition	produced fromthat can be planted	produced from old living organisms that were died, buried and decomposed over
Primary source	*****************	The sun
Renewable or non Renewable		
Examples	Wood,	Natural
	and	gas,and



Worksheet (1)

Choose the correct answer:			
1. Toy cars need energy to do all the following functions,			
except			
a. moving forward and backward. b. rotation in a circle			
c. moving right and left. d. rotation around the			
moon.			
2. In the battery of a toy car energy changes into electrical			
energy			
a. chemical b. sound c. light d. thermal			
3. Electrical energy produced from a toy car battery can be			
changed into and energies.			
a. mechanical - sound – solar b. mechanical - thermal - solar			
C. mechanical - sound - thermal d. sound - thermal - solar			
4. The energy source in a toy car is the			
a. engine. b. tires. c. battery. d. fuel			
5. It takes several for a spacecraft to travel from Earth to Mars			
a. months b. seconds c. minutes d. days			
6. Curiosity rover is designed to explore.			
a. the moon. b. the Sun. c. Earth planet. d. Mars			
planet.			
Correct the underlined words:			
1. The solar energy produced from the moon can be converted			
into different forms of energy. ()			
2. Toy cars depend on <u>fuel</u> as a source of electrical energy.			
()			
3. Curiosity is a robotic vehicle that is designed to explore the			
surface of <u>moon</u> . ()			

•	Complete the following sentences:
	1. The energy can be From one form to another.
	2. Remote controlled toy cars changesenergy stored in
	its batteries into energy that in turn changes
	into energy which is used to Move the car.
	3. To operate an electric mixer we useEnergy
	4. When your cell phone is out of charge, you must rechange
	itsTo operate it again.
	5. Some calculators can change solar energy
	intoEnergy by using the Sunlight
	Put (or (x)
h	1. Energy cannot be transformed from one form to another. ()
	2. We can convert the solar energy into different forms of energy.
	2. We can convert the solar energy into different forms of energy.
	3. We can continue to move a toy car even after its battery runs
	out. ()
	4. Curiosity is a vehicle that travels across the surface of the planet Mars. ()
	5. Mars is located a few meters away from Earth. ()
	6. Without electrical energy, Mars rover curiosity cannot move or
	communicate With Earth. ()
	Give reasons for:
	1. Some calculators use the sunlight to be operated.
	1. Some calculators use the sumight to be operated.
	2. A remote controlled toy car needs battery to move from one
	place to another.
	place to another.

Worksheet (2)

•	Write the scientific term for each of the following:
1.	The main source of energy for most forms of energies on
	Earth.()
2.	The energy produced when the wood of trees is burned.
	()
3.	It is produced from the remains of dead trees buried under the
	Earth's surface over millions of years. (
4.	The energy that is used to operate an electric heater.
	()
5.	The energy stored inside the coal. ()
•	Complete the following sentences by using the words from
	brackets:
	(electrical – kinetic -sun – light – thermal – kinetic – potential –
	sound – heat – kinetic – thermal)
	1.The energy that is produced from the battery used to operate a
	1. The energy that is produced from the battery used to operate a
	toy car is
	2. When you press on the soap dispenser, you turn the
	energy stored in its spring into energy that moves the
	soap upward.
	3. The energies that are produced from the washing machine
	are energy and energy.
	4. When you rub your hands together, the energy is
	converted intoenergy.
	5. In any energy chain, some of the energy is lost in the form
	of
	6. The electric lamp converts electrical energy into energy
	and energy.
	7.The is the primary source of energy that is transferred
	to the food in the
	Form of chemical energy.

What happens if?	
1) You burn a piece of wood. (according to the change of energy)	
2) You shake a small bell with your hand. (according to the change of energy).	こい
 Put (√) or (x): 1. In the soap dispenser, potential energy changes into kinetic 	
energy. ()	
2. In the electric blender, sound energy changes into electrical	
energy and kinetic energy. ()	
3. Most of energy chains starts with the moon. ()	
4. Light energy from the Sun causes trees to grow. ()	
5. Both hair dryer and washing machine depend on the same kind of	f
energy to be operated. (
6. In the electric power stations, the sound energy produced from	
burning of coal can be changed into electrical energy. ()	
7. There is energy loss when energy is transformed from one form to	0
another. ()	
8. Energy can be destroyed inside some devices. ()	
9. Electric bulb depends on chemical energy to be operated. ()	
10. Both electric bulb and electric heater produce thermal energy. (7

Worksheet (3)

•	Write the scientific term for each of the following:				
1.	The energy produced from playing guitar. ()				
2.	The energy produced from the electric lamp and affects our eyes.				
	()				
3.	The energy used to play a drum. ()				
	Choose the correct answer:				
1.	In the electric water kettle, the electrical energy changes				
	into energy that can warm the cold water inside it.				
	a. sound. b. thermal. c. light d. kinetic.				
2.	Some kinetic energy is converted intoenergy due to				
	friction of bike's tire With the road.				
	a. light b. electrical c. potential. d. thermal				
3.	Both hair dryer and electric water kettle produce energy				
	a. Chemical b. thermal C. light d. potential				
	4. When you turn on a light bulb, the electrical energy travels				
	throughuntil reaching the bulb.				
	a. wires. b. glass c.wood d.plastic.				
•	Complete the following sentences:				
1.	When you ride a bicycle, theenergy stored in your body				
	converted into Energy which causes the bicycle to move.				
	The electric lamp converts energy into light energy				
an	idenergy.				
3.	The change of electrical energy into sound energy in the radio is an				
	ample that proves the law of				

•	Give reasons for 1. You feel heat, when you put your hands near a lighted electric lamp.
	2- The presence of batteries inside a toy car.
•	What happens if? - You put your hands near the lighted lamp.
S	el 2000 Language

Worksheet (4)

•	Put (√) or (x) :
1.	The produced sound energy helps the hair dryer to do its function.
2.	In waterfalls, the water that falls down has a kinetic energy.
	The input energy in a hair dryer is the chemical energy. ()
	The energy chain of a burning candle is :Chemical energy
	converted into Thermal energy. ()
•	Write the scientific term:
	The wasted energy when using a mobile phone for a long time.
	()
2.	A kind of energy that is produced from the electric heater and
	burning coal. ()
3.	The energy that is produced from the blender and helps it in doing
	its job. ()
4.	The energy that is produced from the electric power stations and
	flows through wires. ()
•	
1.	The input energy when using the hair dryer is the Energy.
a.	electrical b. potential c. kinetic d.thermal
2.	During the running of a player, the chemical energy inside his body is converted Into andenergies.
A. D.	potential-light. B. kinetic- light. C . thermal- kinetic. thermal – light
3.	The output energy when playing drums is the energy.
	a. chemical b. light C. sound.
	d. potential
4.	When a piece of coal is burnt, Energy is produced.
i	a.Thermal b. Kinetic c. Sound d. Potential

(according to the change of energy).
ng time. (according to the wasted energy)
one is considered as a wasted energy.
nergy are considered as wasted
60

Worksheet (5)

•	Correct the underlined words :
	Fuel is the substance that produces <u>electrical energy on burning</u> .
	()
	We need sound energy, for cooking foods and warming houses.
	()
	Put (√) or (x) :
	Both coal and wood produce energy on burning them
	You need gasoline to move a bicycle. ()
	We cannot drive a car that doesn't contain fuel. ()
8.	As the speed of the car increases, the amount of used fuel
	decreases. ()
•	Choose the correct answer:
1- \	We can use the energy obtained from burning of wood in all of
	e following situations, except
	a. warming houses. b. operating television. C. cooking food
1	d. boiling water.
2- /	All the following are found deeply under the Earth's surface,
exc	<u>cept</u>
a. I	Natural gas. b. Coal. c.Green plants. d.Oil
3- /	Among forms of fuel that present in car fuel stations are
Α.	Gasoline and wood. B. natural gas and coal.
C	wood and coal. D. gasoline and natural gas.
	Complete the following sentences :
1)	Gasoline burns inside a car engine to produce energy
	that is changed Intoenergy which causes the
	movement of the car.
2)	We can use some forms of fuel such asandin
,	warming houses

 Give reasons for: fuel is very important for different means of transportation 	•••
-Sometimes the fuel indicator of a car goes down.	<u></u>
-Gasoline burns inside a car engine.	!.
es John Janes Janes John Janes Ja	••

Worksheet (6)

3113333 til	ie correct answer			
A. wood.	owing are forms o	C. gasoline.		
1		_		
2. All the foll	owing are renewa	able resources of	energy, except	
a. natural ga	s b. water.	C. the Sun.	d wind.	
3.Coal is form	ned under the Ear	th's surface	from the remains	
of				
	nals. b. dead plai	nts. C. dead hui	mans. d. dead	
insects.			> ,	
4.Wood is co	nsidered as			
a. biofuel.	b. fossil fuel. C	C. liquid fuel.	gaseous fuel.	
5.Extreme he	eat and pressure ι	under the Earth's	surface has an	
important ro	important role in Forming.			
a. wood.	b. wind.	Fossil fuel.	d.biofuel	
	the following ser			
1. Water and resources of				
	hile Coal and	,are from	non-renewable	
	of energy.			
2. Wood chi	os and grass can b	e used to make a	a biofuel	
2 Different	forms of fuel can	he classified into	two main types which	
	and		two main types winch	
			a rate faster than	
	oe Renewed are ca			
energy.				

 Correct the underlined words: 	
1. We have to increase planting vegetables and fruits that need <u>a</u>	
large amount of water.()	
2. The moon is the primary source of both biofuel and fossil	
fuel.()	C
3. We can use some <u>animals</u> , to make a liquid biofuel.	
(<u>)</u>	
4. The rate of consumption of fossil fuel, must be increased.	
()	
5. Wood is a form of fossil fuel, that can be used in houses.	
()	
• Put (✓) or (X):	
1. Biofuel is one of non-renewable resources of energy. ()	
2. Extreme cooling under the Earth's surface, helps in the formation	1
of oil . ()	
3. The Sun is the primary source of forming both biofuel and fossil	
fuel. ()	
4. We have to reduce the usage of the Sun as a source of energy. ()
5. We can make a liquid fuel from grass and wood chips. ()	,
 Read the following paragraph, then choose the correct answer 	
Nowadays, we use gasoline and natural gas in means of	
transportation which are	
considered fossil fuels, while we can use coal which is a fossil fuel	
and also wood	
which is a biofuel in warming our houses.	
1is a non-renewable resource of energy, that is	
considered as a fossil fuel	
And it is not used in means of transportation nowadays.	
A. Water. B. Coal C. Wind d. Gasoline	
2. A type of biofuel, which is used in warming houses and cooking	
food is	
a wood h wind C water d sand	

3. A type of fossil fuel, which is formed from decomposition of plant remains is							
A. wood b. sand. C. wind. d. coal.							
Worksheet (7)							
• Put (√) or (X):							
1. We have to conserve all forms of fuel. ()							
2. Burning of fossil fuel inside electric power station produces							
Potential energy. ()							
 Turning off lights that we do not need, is a way to conserve electricity. () 							
4. Any form of fossil fuel must be formed under the Earth's surface.							
()							
 Arrange the following steps to show how electricity is generated 							
in electric Power station and sending it to houses and factories:							
()Steam turns turbines that produce kinetic energy.							
()Fuel burns and produces thermal energy.							
()Electrical energy sent to houses and factories.							
()Water becomes hot and produces steam.							
() Turbines turn generator that produces electrical energy.							
Write the scientific term: 1 The matter that produces steem on heating, which is used to turn.							
1-The matter that produces steam on heating, which is used to turn turbines in Electric power station. ()							
2-The type of fuel that is used inside the electric power station to							
produce Electricity . ()							
3-The device in the electric power station, that produces kinetic							
energy to operate Generators. ()							
Correct the underlined words:							
1. Fossil fuel include oil, coal and wood. ()							
2. Hydroelectric energy, is one of <u>non-renewable</u> energy resources.							
()							
3. In electric power station, <u>water</u> turns turbines that produce							
kinetic energy. ()							

	ns, their remains are buried under
the Earth's surface and expo	sed to
extreme pressure and <u>cool</u>.(.)
Choose the correct answer:	
1. Inside the electric power state	ion, heating of produces
steam.	
A. turbines b. generators	c. water d. fuel
2. All the following are used to	
except	
·	s. C. waterfalls. D, rain water.
3.Hydroelectric energy is generated as a second sec	
a. waterfalls only.	
•	. biofuel and fossil fuel.
4. All the following are forms of	
	C. natural gas. d. oil.
5. Which of the following forms	
man?	or dela carride mandractured by
	b. Oil and charcoal.
A. Oil and natural gas.	
C. Natural gas and ethanol.	d. Charcoal and ethanol.
6.All the following factors play a	an important role in the formation of
fossil fuel, except	
A. extreme pressure.	b. extreme heat.
C. The moon light.	d. rocks and sediment.
C. The moon light.	u. rocks and sediment.

Worksheet (8)

• Choose the correct an	• Choose the correct answer :							
 1.Cars smog cause irritation of of humans. a. stomach and eyes b. eyes and lungs c. small intestine d. large intestine 2. Acid rain is formed when								
								A. oxygen gas b. carbon dioxide gas C. dust
3. All the following are	harmful effect	ts of acid	ain, except.					
a. global warming.		b. death						
c. chemical changes in soil.	lakes.	d. chemic	al changes in the					
 Complete the following 	ng sentences b	vusing the	e words :					
(Acid - Fish - soil - c	4							
 Acid rain leads to cher 			ture of lakes					
causing death of	O	,						
2. Burning of coal and oil	produce	g	as .					
-		_						
toRain	3. Chemical changes in the structure ofDue							
4. Tiny particles found inlead to air pollution .								
• Put () or (x):								
1.Acid rain helps trees to su	rvive. ()							
2. Global warming increases	the decompos	sition of so	ome rocks . ()					
3. Rain water can be mixed	with both pesti	icides and	carbon dioxide gas. (
• Write the scientific te	rm of each of t	he followi	ng:					
1. It is the system that its tis								
amount of cars smog. ()							
2. It is a phenomenon in wh			ure increases when					
carbon dioxide gas increa		•						
3.			•					

Worksheet (9)

Give one example for each of the following: A method of conserving fossil fuel.
2. Anon-renewable resource of energy.
3. An advantage of using renewable resources to produce energy.
 Correct the underlined words: 1. The amounts of renewable resources of energy are limited on Earth. () 2. Gases emitted from fossil fuel on burning decrease the temperature on Earth. (
What happens f
Using renewable resources of energy instead of fossil fuel. (according to Earth's temperature)
2. People don't rationalize their using of fossil fuel.



(A) Choose the correct answer:

- 1. To move a car, the fuel must be at first.
- a. freezed.
- b. cooled
- c. burned inside the car engine
- d. removed from the fuel tank
- 2. During driving a car for a long distance, which of the following sentences describes the most important thing for the driver?
- a. The presence of a speedometer.
- b. The presence of a radio.
- c. The fuel tank contains enough amount of gasoline.
- d. The fuel tank contains a little amount of gasoline.

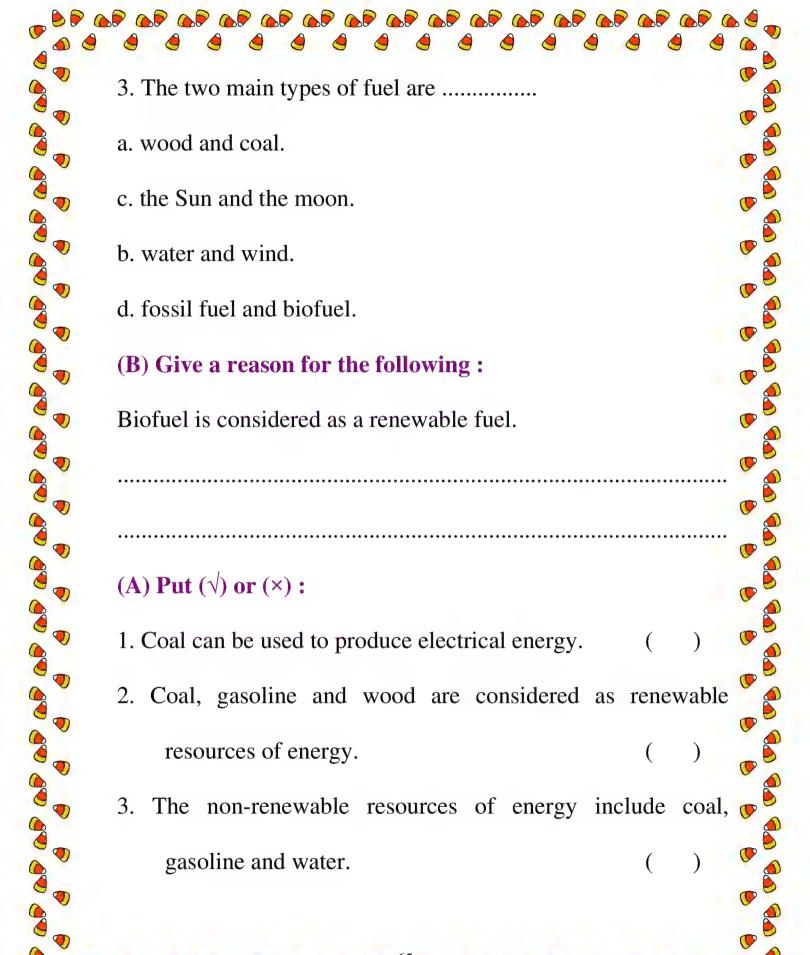
3. On burning fuel we obtain				
a. sound energy.				
c. electrical energy.				
b. potential energy.				
d. thermal energy.				
(B) Give a reason for the following	:			
The importance of wood and coal in	our houses.			
•••••••••••••••••••••••••••••••••••••••				
•••••••••••••••••••••••••••••••••••••••	······································			
(A) Put $()$ or (\times) :				
1. Energy that is produced from burning gasoline, cannot be				
used to move a car.	()			
2. Burning of all forms of fuel produces thermal energy. ()				
3. If the fuel decreases in a car during driving, the driver must				
stop at the nearest fuel station	n to supply the car with			
gasoline.	()			

, 🔊 🔊 🙆						
	(B) Mention three different forms of fuel.	0				
9	Put each of the following words in front of the suitable					
()	sentence:					
9	[The Sun - Wood - Gasoline - Thermal energy]					
7	1. It is a form of fuel that is used in different means or	f 🍼				
v	transportation. ()	•				
v	2. It is a form of fuel that is used in warming houses.					
7	()	(
①	3. It is a form of energy which is produced from burning fuel.	0				
•	()	U				
9	4. The main source of most energies on the Earth's surface.	•				
(1)	()	(1)				



(A) Choose the correct answer:

- 1. Car engines can be operated by
- a. coal only.
- b. coal and wood.
- c. gasoline only.
- d. gasoline and natural gas.
- 2. The fossil fuel are formed under the Earth's surface from dead plants or animals, after a period of time.
- a. very short
- b. short
- c. very long
- d. long



(B) What happens if ...?

Marine organisms were buried under th	e Earth's surface over
millions of years.	

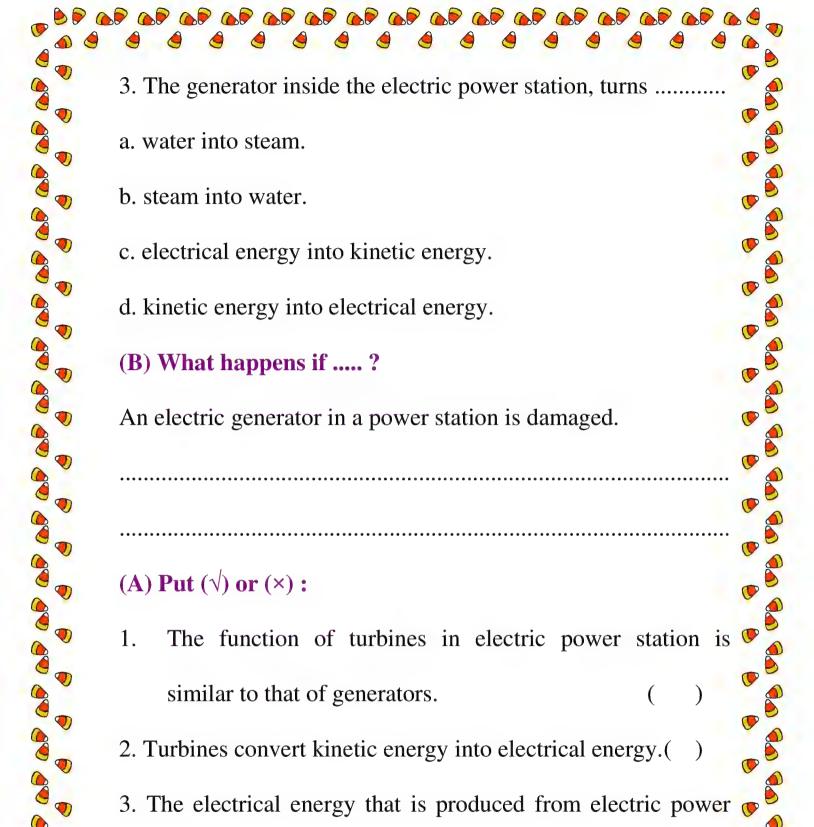
Choose from column (B) what suits it in column (A):

(A)	(B)
Form of fuel	We can get it from
1. Wood	a. wood chips and grass.
2. Gasoline and natural gas	b. cutting of trees.
3. Coal	c. decomposition of marine
4. Liquid biofuel	animals.
	d. decomposition of plant
	remains.
	e. boiling water.
1 2 2	1



(A) Choose the correct answer:

- 1. To produce steam inside the electric power station, we have to
- a. cool the water.
- b. freeze the water.
- c. heat the water.
- d. cool the fuel.
- 2. The devices in the electric power station which operated by steam are
- a. the generators.
- b. the turbines.
- c. the tubes.
- d. the cables.



station, can be used in houses, streets and factories.(

(B) Complete the following sentences by choosing the correct answer from those between brackets:

- 1. Fossil fuel are [non-renewable renewable] resources of energy which are used to generate electrical energy.
- 2. Turbines in electric power stations are operated by the effect of of [steam sand].
- 3. Electrical energy travels from electric power stations to houses through [cars cables].

B From your understanding of how electricity is generated in electric power stations. Put each of the following words in front of its suitable sentence:

[Coal - Steam - Turbine - Generator]

- 1. Its movement produces kinetic energy. (......)
- 2. It changes kinetic energy into electrical energy. (..........)
- 3. It is a type of non-renewable resources of energy. (...........)
- 4. It is resulted from heating the water and it turns turbines.

(.....)



(A) Choose the correct answer:

- 1. When carbon dioxide gas increases, the Earth's temperature
- a. decreases slowly.
- b. increases slowly.
- c. decreases fastly.
- d. doesn't change.
- 2. All forms of fossil fuel are formed
- a. above the Earth's surface.
- b. under the Earth's surface.
- c. above the water surface.
- d. in the air around us.
- 3. We have to protect stones of buildings from
- a. global warming.

b. oxygen gas.

c. acid rain.

d. carbon dioxide gas.

(B) Give a reason for the following: Burning of coal and oil causes the increase of the Earth's temperature. ********************************* (A) Put $(\sqrt{})$ or (\times) : 1. Acid rain causes global warming. 2. Mixing of water with oxygen gas produces carbonic acid. 3. Acid rains have negative effects on both soil and water of canals. (B) What happens if? Some people live in a city that has too much cars smog. (according to the human health).

Scientists do some experiments to know the bad effects of some different sources of pollutions on different living organisms.

Match each experiment with its correct observation:

The experiment	The observation			
1. Exposing a dog to cars smog	a. its leaves turn brown and it			
for a few minutes	will die.			
2. Placing a building stone in a	b. irritation of its eyes and			
cup contains a sample of	lungs.			
acid rain for a long period of	c. it -will decompose into			
time	small rocky particles.			
3. Watering a small plant with				
acid rain for a week				



(A) Choose the correct answer:

- 1. The energy that originally causes the formation of the non-renewable fuels is
- a. wind energy.

b. water energy.

c. solar energy.

- d. electrical energy.
- 2. As the time passes, the amount of coal will
- a. increase.

b. decrease.

c. remain constant.

- d. increase then decrease.
- 3. Burning of fossil fuel produce.....
- a. only gases that pollute the air.
- b. only thermal energy.
- c. gases that pollute the air and solar energy.
- d. thermal energy and gases that pollute the air.

(B) Give a reason for the following:	
Burning fossil fuel causes global warmi	ing phenomenon.
	••••••
(A) Put $()$ or (\times) :	
1. Renewable forms of fuel can be re	placed faster than non
renewable forms of fuel.	()
2. Burning fossil fuel produces gases	that don't cause globa
warming.	()
3. Burning coal emits gases which cause	e air pollution. ()
(B) What happens if?	
The amount of gases produced from	burning of fossil fue
increases to very high limit.	
(according	g to Earth's temperature

Complete the following paragraph by using the following words:

9 09 09 09 09 09 09 09 09 09 09 09 09 0

[global warming - heat - raises - gases]

Model Exam

((\mathbf{A})) Com	plete	the	follo	wing	senten	ces:
•	(- -	, – – – –	P				~	

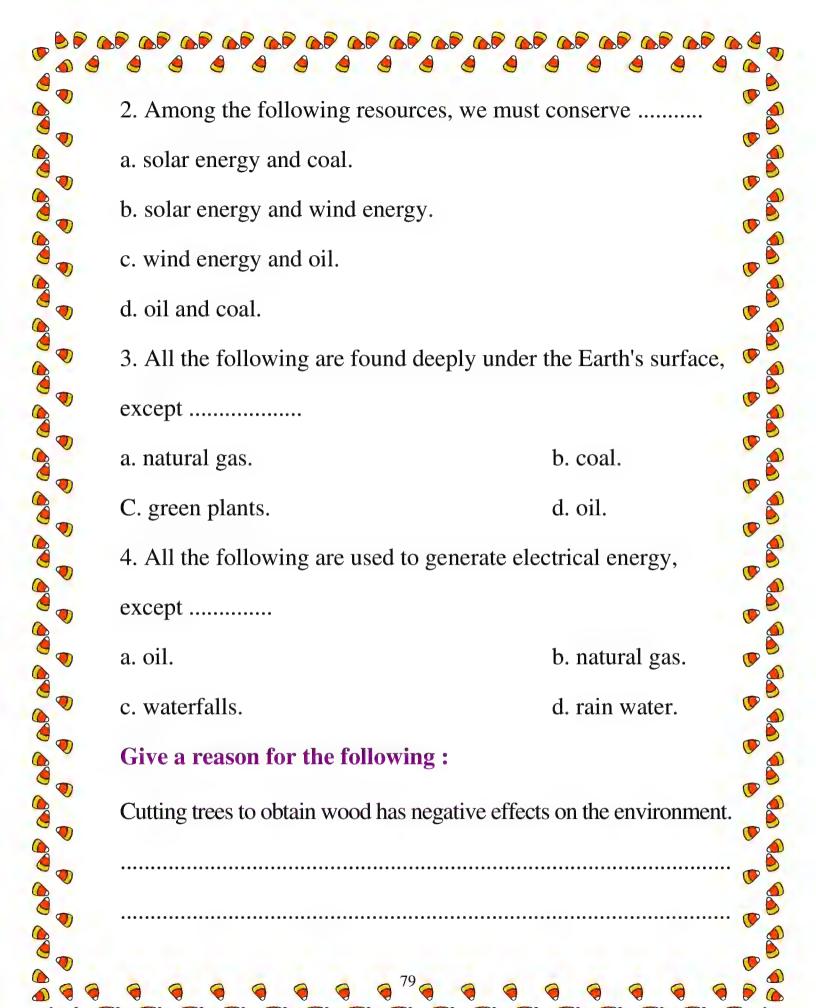
- 2. The electric generator changes energy into energy.
- 3. Using the resources of energy is more expensive than using fossil fuel.

(B) Choose from column (B) what suits it in column (A):

)			1
)	(A)	(B)	•
,	1. Water	a. it needs extreme heat and pressure to be form	
)	2. Wind energy	from remains of dead plants.	
)	3. Coal	b. it is the main resource of energy on the Earl	(
)		surface.	(
)		c. it is a gaseous renewable resource of energy.	(
)		d. it is a liquid renewable resource of energy.	(
)			(

9	(A) Correct the underlined words:		C
7	1. Fuel is the matter that produces electrical	l energ	y on
	burning. (• • • • • • • • • • • • • • • • • • • •	.)
	2. Wood is a form of fossil fuel, that can	be use	ed in
	houses. (
	3. Hydroelectrical energy, is used to produce	water	from
	waterfalls and dams. (• • • • • • • • • • • • •	.)
	4. Gases emitted from burning fossil fuel alwa	ıys <u>clea</u>	r the
	air. (• • • • • • • • • • • • • • • • • • • •	.)
	(B) What happens if?		(
7	We use renewable resources of energy instead of fe	ossil fue	el (
7	(according to Earth's	tempera	ature) (
		•••••	
		• • • • • • • • • •	
	(A) Put $()$ or (\times) :		
	1. Wind energy will run out faster than natural gas.	. ()
	2. Turning off lights that we do not need, is a way	to conse	
	electricity.	()

	3. We can make liquid biofuel from wood chips and grass.()					
	4. As the speed of the car increases, the amount of used fuel					
	decreases.	()				
	(B) Arrange the following steps to show how electricity is					
	generated in electric power station and sending it to houses					
7	and factories:					
	() Steam turns turbines that produce kinetic energy.					
	() Fuel burns and produces thermal energy.					
	() Electrical energy sent to houses and factories.					
	() Water becomes hot and produces steam.					
7	() Turbines turn generator that produces electrical energy.					
	(A) Choose the correct answer:					
	1. Coal is formed under the Earth's surface from the remains					
7	of					
	a. dead animals.	b. dead plants.				
	c. dead humans.	d. dead insects.				
7						



EXERCISES 1

(A)	Put	()	or	(×)	:
		~ /		· /	

- 1. The solar vehicle changes sound energy into kinetic energy.
- 2. Mars rover curiosity can be operated from a distance.()
- 3. The stored energy in batteries is the light energy. ()
- (B) Give a reason for the following:

Curiosity robot uses the sunlight and batteries for its operation.

.....

- (A) Write the scientific term of each of the following:
- 1. The main source of energy on the Earth. (...........)
- 2. The form of energy that is stored in battery of a remote controlling toy car.

2	3. The remote controlling vehicle	that is used to explore the	
7			
	surface of Mars planet.	()	
	(B) Mention two devices ca	n he operated from a	
	(b) Merition two devices ca	ii be operated from a w	
7	distance by using a remote control.		
9			
	•••••		
9			
	Look at the opposite figure, t	hen choose the correct 🔊	
9	answer:		
	answer.		
	1. This car needs to	o move.	
7			
9	a. water.	o. wood	
	c. fuel.	danaray	
	c. ruei.	d. energy • • • • • • • • • • • • • • • • • • •	
	2. To keep playing with the toy ca	r when the battery runs out,	
7			
	we have to or	recharge the battery.	
	a haat	h and	
7	a. heat.	b. cool	
	c. replace.	d. freeze	
	3. The type of energy that is us energy.	ed in operating this car is	
2	a. sound.	b. light	
7	c. thermal.	d. electrical	
		(P)	



(A) Complete the following sentences:

1. When you rub your hands together, the consumed energy is
energy, while the produced energy isenergy.
2. The produced energy in a toy car is energies in a
hair dryer are energy, while the produced energy and
sound energy.
3. The produced energy from coal is energy, that is
converted into energy used to operate the machines
of electric power stations.
(B) Give a reason for the following:
The thermal energy produced from burning coal is used in
some electric power stations.

(A) Put $(\sqrt{})$ or (\times) : 1. Curiosity robot needs sound energy to be operated. (2. The electric lamp is the primary source of most energies on the Earth. 3. The electric iron converts electrical energy into thermal energy. (B) What happens if ...? You press on the spring of the soap dispenser. (according to the change of energy).

Look at the opposite figure, then complete the following sentences:

1. This living organism can converts energy of the Sun into energy stored inside it.

2. If the wood of this organism is burned, energy is produced.

- 3. After death and burying of this organism over millions of years, it becomes coal that stores energy.
- 4. The formed coal can used in electric power stations to generate energy.

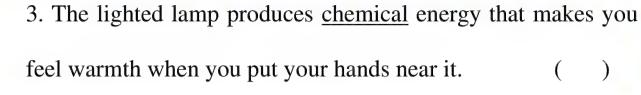




(A) Choose the correct answer:

- 1. Mars rover curiosity uses to be operated.
- a. solar energy and electrical energy
- b. solar energy and thermal energy
- c. electrical energy and thermal energy
- d. electrical energy and sound energy
- 2. While playing a drum, energy changes into
- energy.
- a. sound kinetic
- b. sound light
- c. kinetic sound
- d. kinetic light

000	
	3. In the bicycle, the kinetic energy is converted into
	energy due to the friction of its tires with the road.
	a. sound. c. light
	b. thermal. d. chemical
	(B) What happens if ?
	You rub your hands together.
	(according to the change of energy).
	•
7	(A) Correct the underlined words:
	1. Energy can neither be created nor destroyed, but only
	converted from one form to another, this is the law of consuming of energy.
	2. The consumed energy while burning some pieces of wood is
	the thermal energy.



(B) Mention two devices that convert electrical energy into both kinetic and sound energy.

Look at the following figures, then complete the following sentences.







Device (1)

Device (2)

Device (3)

Device (4)

1. The electrical energy used to operate devices number

..... and

2. Kinetic energy is produced in devicesand.....and.....



(A) Complete the following sentences:

- 1. The output energy of burning coal is energy, which is used to produce energy in electric power stations.
- 2. The output energy that helps the washing machine to do its main function is energy, and this energy is considered the energy of the hand bell.
- 3. The input energy of the toy car is energy that is stored in its battery and then converted into energy in its wires to operate its motor.

(B) Give a reason for the following:

Sound energy and thermal energy are considered as wasted energy in the washing machine.

(A) Write the scientific term of each of the following:

- 1. The input energy of a television. (........)
- 2. The wasted energy of a computer. (.........)
- 3. The output energy of the washing machine which helps it to do its main function. (......)
- (B) Mention the input and output energies of the opposite device:
- 1. Input energy:
- 2. Output energy:.....
- 13 Look at these electric devices, then complete the following sentences:



Device (1)



Device (2)



Device (3)

Model Exam

(A) Choose the correct answer:

c. kinetic – light.

1. Mars rover curiosity is designed to explore		
a. Earth planet.	b. Mars planet.	
c. the Sun.	d. the moon.	
2. Plants can convert the light energy from the Sun into		
energy which is stored inside the plant in the form of sugar.		
a. sound.	b. electrical	
c. chemical.	d. kinetic	
3. When a piece of coal is burnt, energy is produced.		
a. thermal.	b. kinetic	
c. sound.	d. potential	
4. Inside a light bulb, electrical energy	changes into and	
energies		
a. sound – light.	b. sound - thermal	

d. light - thermal

_		
9	(B) What happens if you put your hands near a	P
9	lighted lamp?	>
9		
7	(A) Put (v) or (x):	P
1	1. There is a stored chemical energy inside the food	
7	we eat.	P
v	2. The input energy in a hair dryer is the chemical energy.()	
①	3. As a result of friction between bike's tire and the road,	
7	kinetic energy changes into chemical energy. ()	D
7	4. We can convert the solar energy into different forms of	D
v	energy. ()	P

(B) Look at the following figures, then complete the following energy chain



(





Figure (1)

Figure (2)

Figure (3)



Figure (4)



Figure (5)

Radiant energy

Converted into

Heat energy

Converted into

Kinetic energy

Converted into

Electrica lenergy

(A) Correct the underlined words:

()

	(A) Correct the undermied words:
	1. <u>Light</u> energy is stored inside the battery of a mobile
)	phone. ()
	2. Toy cars depend on fuel as a source of electrical
	energy. ()
1	3. Light energy, thermal energy and chemical energy are
	produced when a mobile phone is used. ()
	4. The solar energy produced from the moon can be converted
	into different forms of energy. ()
	(B) Give a reason for the following:
	When you press on the spring of soap dispenser, the soap
	moves upward.
	(according to the change of energy)
)	
)	

P

(A) Write the scientific term of each of the following:

- 1. The energy that is used to operate a television. (......)
- 2. Energy can neither be created nor destroyed, but only converted from one form to another. (..........)
- 3. A kind of energy that is produced from the electric heater and burning coal. (.....)
- 4. The energy produced from playing guitar. (......)

(B) Choose from column (A) what suits it in both columns (B) and (C):

(A)	(B)	(C)
Energy used	The device	Energy Produced
1. Kinetic energy	a	A. Thermal energy.
2. Electrical energy	b	B. Chemical energy.
3. Solar energy	c	C. Sound energy.